

**THE USE OF CHISHONA AS A MEDIUM OF INSTRUCTION IN THE TEACHING
OF MATHEMATICS IN PRIMARY SCHOOLS**

By

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MATHEMATICS IN PRIMARY SCHOOLS**

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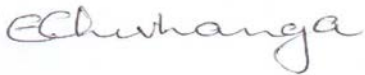
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JUNE 2012

DECLARATION

Student Number: 3106-773-5

I, **Ester Chivhanga**, declare that **THE USE OF CHISHONA AS A MEDIUM OF INSTRUCTION IN THE TEACHING OF MATHEMATICS IN PRIMARY SCHOOLS** is my work and that the sources I have used or quoted have been indicated and acknowledged by means of complete references.



Signature

12 June 2012

Date

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SUMMARY

The study sought to explore possibilities of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools. The aim was to compare the use of English as a medium of instruction with ChiShona as medium of instruction in the teaching and learning of Mathematics to Grade 4 class. The other objective was to examine the people's attitudes towards the use of mother tongue instruction in the teaching and learning of Mathematics in Zimbabwe primary schools.

A practical teaching experiment was used to investigate the feasibility of using ChiShona as medium of instruction in the teaching and learning of Mathematics to Grade 4 class. In addition a descriptive survey research design which used questionnaires and interviews as data collection methods was employed for its usefulness in exploratory studies. A total of 750 people participated in the research and these were 40 Grade 4 learners (used for teaching experiment) 260 teachers/lecturers, 250 parents and 200 college/university learners. Data gathered was subjected to both quantitative and qualitative analysis resulting in data triangulation for validation.

Major findings of the research indicated that the use of ChiShona as a medium of instruction in the teaching of Mathematics to primary school children is possible and that the use of the mother tongue instruction (ChiShona) impacted positively in the teaching of Mathematics to Grade 4 learners. The use of ChiShona as a medium of instruction in teaching Mathematics was effective and comparatively the learners who used ChiShona performed better than those who used English as a medium of instruction. However the research further concluded that people preferred that English remain the only medium of instruction from primary up to university level as English offers them better opportunities for employment compared to ChiShona.

The study concludes that the continued use of English as medium of instruction means that African languages such as ChiShona will remain underdeveloped and fail to find their way in the

classrooms as languages of instruction in education. The study finally recommends the need for an all-inclusive multi-lingual policy that uplifts the status of indigenous languages and their literature without annihilating English.

Key Terms

Language planning, Language; literature empowerment; language policy and development; language policy and literature development; mathematics; indigenous languages and empowerment; indigenous literature and empowerment; Mother tongue, mother-tongue instruction; socio-cultural and economic development , Official language, Medium of instruction

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CHAPTER 1

INTRODUCTION

“One can admit that the best vehicle of teaching is the mother tongue of the child”
(UNESCO, 1953: viii).

1.1 PREAMBLE

This research study falls within the realm of language planning and language policy. It focuses on the feasibility of using ChiShona as a language of instruction in the teaching of Mathematics in primary schools in Zimbabwe. It focuses on how the use of English as a medium of instruction in the teaching and learning of Mathematics compares to mother tongue instruction in the teaching and learning of Mathematics in Zimbabwean primary schools.

Zimbabwe inherited from its colonial past a language policy that marginalises the use of indigenous African languages in the education system. English continues to be the prestige-laden language enjoying high status while indigenous African languages enjoy relatively low status. English is the medium of instruction in primary, secondary and tertiary education. Indigenous African languages such as ChiShona, received very little attention in terms of use as media of instruction. The continued use of English as a medium of instruction means that no scientific ideas can be formulated using ChiShona in the present schooling system leading to perpetual scientific bankruptcy (Magwa, 2009: iii). This study is therefore an attempt to explore the possibilities of using ChiShona as a language of instruction in the teaching of Mathematics.

An examination of the Zimbabwean linguistic situation indicates clearly that there is a linguistic discrepancy. The language of government is not the language of the governed. The language of the people does not feature much in the development discourse. Postcolonial Zimbabwe is an example of neglected multilingualism with an unbalanced bilingual behaviour by its citizenry. English has firmly entrenched itself as the language of government, business, the media, education, training and specialized information, as well as upward mobility and wider communication within and outside Zimbabwe's borders (Chimhundu, 1993:57). African languages are predominant in what are perceived to be the relatively unimportant family, social and cultural domains and continue to be downgraded particularly in the educational system and

in public life. The government is more comfortable in using the same colonial language policies that were used in the past by the colonial minority to keep the majority of Zimbabwe, disempowered by making grassroots participate in national issues and debate difficult if not impossible (Chimhundu,1993). The Government hid behind the unfounded myths that say promoting indigenous African language would be equated to promoting tribalism (Magwa, 2010). According to Magwa (2010: 8) this mentality created no serious attention to the language issues of Zimbabwe leaving English to dominate the language map of Zimbabwe.

Decades after attaining independence, African countries remain prisoners of the past with constraint reinforced by the argument that English is going to be needed for higher education, technology, science and industry (Bamgbose, 1991:72). The question is what and where is the problem? Indigenous African languages have not been associated with access to modern education and technology, so non-African languages considered to equip the learner with access to rapid economic development and social mobility are preferred. Secondly speakers of indigenous African languages are not economically and technologically empowered to determine their destiny.

The Zimbabwean language policy adopted at independence which is enshrined in the Education Act of 1987 (as amended in 1990, 1996 and 2006) enhances the importance of English as the language of business, administration, teaching and international relations. The Act only allows the teaching of ChiShona and IsiNdebele from Grade 1 to university level as subjects. It states that from the fourth grade, English shall be the medium of instruction. ChiShona is not used at all as media of instruction in other subjects in the primary schools of Zimbabwe. According to Magwa (2009) English language thus remains the official medium of instruction in schools, a compulsory subject and also a requirement on all school certificates. The medium of instruction is viewed to have a strong bearing on how the learner will adjust and work effectively at school (Mavesera, 2009). Hence this research seeks to examine the possibilities of using ChiShona as a medium of instruction.

A close relationship exists between language, thought and intelligence, (ADEA, 1996b:45-6). Language is the vehicle of thought and intelligence. It is through language that ideas are

conceptualised, thoughts organised and memory systematised. Batibo (2005:36) maintains that indigenous African languages should not be seen as stumbling blocks to national unity, national identity and national development but should be regarded as resources for people's aspirations and full participation in national development. In view of this the language of education should be that which offers potential for full participation by the masses. However the question that remains is: "Are indigenous African languages, for example, ChiShona, in a position to be effectively and efficiently used as media of instruction in education especially for scientific subjects such as Mathematics?"

ChiShona is spoken by 80% of the Zimbabwean population (Hachipola 1998, Batibo, 2005:84). It is the mother tongue for most of the learners in primary schools. In class English is their language of instruction in the teaching of subjects such as Mathematics and their mother tongue is marginalised. Although ChiShona is spoken by the majority of the children in primary schools, it has not assumed any significant role as a national indigenous African language. The mother tongue is a production tool that facilitates thinking and sharing of ideas in a teaching and learning situation. Studies have shown that instruction in the mother tongue is beneficial to language competence in the first language, achievement in other subject areas and training in a second language (UNESCO, 2003). According to Pattanayak (1981:55) 'instruction in the mother tongue helps in the search for self- affirmation, establishes group identity, satisfies the rational urge for cultural footedness and avoids fanatics in concept formation, critical thinking, creativity and in important social values'. In other words, children who begin their education in mother tongue make a better start, demonstrate increased self- confidence and continue to perform better than those who start school in a foreign language. This is supported by the 1951 UNESCO resolution which asserts that the best medium for teaching a child is the child's mother tongue. The researcher wishes to undertake this study in order to examine on how the use of English as a medium of instruction in the teaching and learning of Mathematics compares to mother-tongue instruction in the teaching and learning of Mathematics.

Researchers such as McNamara in Chiwome (1992:248) established that learning takes longer in a foreign language (English) than in the mother tongue (ChiShona). This means that mother-tongue tuition ensures linguistic accessibility to studied material, helps to develop critical

thinking and to foster effective communication. According to Mutasa (2003:306) mother tongue instruction results in improved learning achievements, better adjustments to school, cultural preservation and self confidence in children. Learners are likely to grasp learning concepts much easier if educational materials are written in local languages and concepts taught through the mother tongue. It is also recommended on psychological, social and educational grounds that children be taught in a language they know effectively, which will normally be the mother tongue of the children.(Webb ,2002:192). A language that a child knows effectively should be the language of education and training which is capable of opening communication barriers. According to Webb (2002) where the language of instruction is the same as the mother tongue, it gives confidence to a learner with respect of their cultural heritage and historical baggage. In other words learning through a mother tongue leads to self realisation and self actualisation. With the above discussed characteristics of mother tongue instruction one wonders why Zimbabwe after thirty years of independence is not considering indigenous African languages such as ChiShona to be used as media of instruction in the teaching and learning of subjects in primary schools. ChiShona is equally an important language and there is nothing that cannot be articulated in ChiShona hence if other languages like English are used, why not ChiShona. This study is an attempt to explore possibilities of using ChiShona as the official medium of instruction in the education system, the rationale being that indigenous African languages are accorded little value in the education system of Zimbabwe. Educational policies in the country on the other hand, have been coined along European lines in order to maintain European hegemony over Africans resulting in the marginalization of indigenous African languages in official domains.

1.2 STATEMENT OF THE PROBLEM

The inadequacies of language policies and inequalities of indigenous African languages in socio-economic, political, science and technological development have seen Zimbabwe remain an underdeveloped country in spite of an abundance of resources. (Mavesera, 2009). There is a perpetual denial of our indigenous African languages, such as ChiShona, to be given a chance to flourish and help promote our culture and national identity through its use as a language of

instruction in teaching Mathematics in schools, hence the need for an urgent redress of this anomaly. As tools of communication, indigenous African languages, for example, ChiShona, have the potential to make a very big contribution in development, education, entertainment, information and also fill in the position of English as an official language of instruction in Zimbabwean schools. The continued use of English as a medium of instruction implies that no scientific ideas can be formulated using ChiShona in the current education system resulting in scientific bankruptcy (Magwa, 2009: iii). This study is therefore an attempt to explore the possibilities of using ChiShona as a language of instruction in the teaching of Mathematics.

1.3 AIMS OF THE STUDY

The major aim of this study is to examine the feasibility and possibility of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools of Zimbabwe and compare its effectiveness with that of English as a medium of instruction in teaching Mathematics. ChiShona is the mother tongue for most of the learners in primary schools. This research seeks to promote the mother tongue as a medium of instruction on the teaching of Mathematics in primary schools, something that has not been done before in the history of Zimbabwean education. The researcher feels that mother tongue promotion in primary schools helps to develop not only the mother tongue but also the learners' abilities in the majority of subjects in primary schools. Mutasa (2003) and Dutcher (2003) argue that children who come to school with a solid foundation in their mother tongue develop stronger literacy abilities in the school subjects.

The research also aims at establishing the degree to which ChiShona can be introduced in the educational domain as a language of teaching and learning in primary schools. Mother tongue instruction is effective when there is appropriate terminology for education purposes and sufficient resources materials; when there are appropriately trained teachers available and when learners, educators and parents are willing. Currently there are no material resources to support ChiShona, a mother tongue, as a language of instruction in the teaching of Mathematics in primary schools. The research aims to find out the extent to which ChiShona could be used as a

language of instruction and be able to adopt and ‘scientificate’ appropriate mathematical terminology from other science subjects in the primary schools.

The research also explored and highlighted the attitudes of learners, teachers, and parents towards the use of ChiShona in the learning and teaching situations in primary schools and find out how they view its role as a language of instruction in Mathematics as a subject. It examines the attitudes of Zimbabweans towards the use of the mother tongue as a medium of instruction in primary schools. The research examines and highlights some of the limitations or constraints in the use of ChiShona in educational domains.

1.4 OBJECTIVES OF THE RESEARCH

The objectives of this research are as follows:

- To investigate the feasibility of using ChiShona as a medium of instruction in the teaching and learning of Mathematics to a Grade 4 class.
- To compare the use of English as a medium of instruction with ChiShona as medium of instruction in the teaching and learning of Mathematics in Zimbabwean primary schools.
- To determine the people’s attitudes towards the use of ChiShona as a language of instruction in the teaching and learning of Mathematics in primary schools.
- To establish the status of ChiShona language as a medium of instruction in the teaching of Mathematics in primary schools.
- To suggest ways in which ChiShona could be sufficiently developed in order to be used as a language of instruction in primary schools.

1.5 RESEARCH QUESTIONS

- To what extent can ChiShona be used as a medium of instruction in the teaching of Mathematics in primary schools?
- How effective is the use of ChiShona as a medium of instruction in the teaching and learning of Mathematics as compared to English as a medium of instruction in the teaching and learning of Mathematics in Zimbabwean primary schools.

- What are the socio-economic advantages of using ChiShona language as an official medium of instruction in education?
- What are people's attitudes towards the use of ChiShona as a language of instruction in the teaching and learning of Mathematics in primary schools?

1.6 JUSTIFICATION OF THE STUDY

Previous researchers such as Dube (2002) and Mavesera (2009) have exposed the inadequacies of language policies and inequalities of indigenous African languages in socio-economic, political, science and technological development that have seen Zimbabwe remain an underdeveloped country in spite of an abundance of resources. None of them has focussed on the feasibility and probability of using ChiShona as a language of instruction in Primary schools and particularly in the teaching of Mathematics. This research seeks to contribute in the promotion of the use of indigenous African languages, for example ChiShona, as media of instruction in the education system of Zimbabwe and would like to fill the gap left by previous researchers.

Magwa (2008) asserts that the dominant languages of government and business in Southern Africa tend to be in most cases former colonial languages. The dominance of English in science and technology has an effect of diminishing the value of other languages and this has become the norm and other languages are an alternative when dealing with science matters. Therefore, it influences its specification and standards which are western on how things should be done. It is high time scholars and policy makers join hands to come up with an Afro-centric theory or model of language planning in the learning and teaching of different subjects in primary schools. Hence it is the intention of this research to provide practical suggestion that may result in a comprehensive language policy that effectively put into effect the use of indigenous African languages as media of instruction in teaching in primary schools.

There are deliberate efforts to boost the ChiShona literary heritage by organisations and individuals. The African Languages Lexical Project (ALLEX) is working tirelessly on indigenous languages' lexicography and language promotion. They have published monolingual dictionaries in ChiShona and IsiNdebele. The ChiShona language and Culture Committee has also produced an 'A' level ChiShona text for literature published by Mambo Press. Individuals such as Magwa (1999), Nyota (1999), Mashiri and Warinda (1999) have made publications in

the area of ChiShona development. These are handy reference materials that are now available and can be consulted when carrying out studies on the ChiShona language such as this one. Some researchers have worked on the use of the ChiShona language in society and these include Dube (2008), Magwa (2008) Mavesera (2009) and Chimhundu (1985 and 1987). There is an increasing interest on the use of ChiShona in society in some areas previously the preserve of the English Language such as Science and technology, Local government and medium of instruction. But very little research has been done on the area of applying ChiShona as a language of instruction in the teaching of Mathematics or other Science subjects and hence this research seeks to fill the gap.

1.7 RESEARCH METHOD

To examine the feasibility of using ChiShona as medium of instruction in the teaching of Mathematics to primary schools, a multidimensional methodology using mainly qualitative methods supported by quantitative ones will be used. This method of approaching a research study is viewed as multifaceted as data is gathered in many different ways and from as many diverse sources as possible (Mutasa, 2003). Mutasa (2003:5) see this method of research as triangulation as it “encompasses multiple sources of data collection in a single research project to increase the reliability of the results and to compensate for the limitations of each method”.

According to Leedy, as quoted by Mutasa, (2003:15) qualitative and quantitative differ in the sense that qualitative research data is verbal and quantitative research data is numerical. The qualitative approach describes and gives answers from the participants, point of view. The approach uses data to identify items, explain aspects of usage, and to provide real life examples of usage. The advantage of using qualitative method is that findings are descriptive (Leeds 1997). Qualitative approaches are justified on the grounds that researchers are more interested in the quality of a particular activity and not its numerical occurrence. It investigates the qualitative different ways in which people experience or think about phenomena (Hendry, 1996:13). The understanding with which the qualitative investigation is concerned is conveyed by the description of the participants’ feeling, ideals, beliefs, and thought. Thus it captures the vagueness and subjectivity of a language analytical to the use of ChiShona as a language of instruction in the teaching of Mathematics in primary schools.

In discussing quantitative method Alasuutari (1998:40) associates this method mainly with the acquisition of data through statistics. He observes that “Rather, the term (quantitative) refers to the operations in and through which the observations concerning reality are produced. The quantifying method looks at reality as a system of laws composed of different kinds of “variables”. Its main tools of analysis are standardization and the explanation of differences.” Quantitative methods answer questions about relations between quantifiable values with the wish to explain, predict and control phenomenon. Quantitative research as the name suggests is based on the measurement of quantity or amount. It places emphasis on how often an event or activity occurs which makes it inadequate. This multifaceted approach will benefit the study from the precision of the qualitative analysis combined with the statistics generalisations as data is gathered in many different ways and from as many diverse sources as possible (Mutasa, 2003:15).

Both qualitative and quantitative research methods have advantages that can be exploited in this study. The qualitative method is being taken as the main method in this study. It allows descriptions, interviews and analysis to be carried out. The results from the qualitative analysis are augmented by quantitative analysis. The data for this study will be gathered through the use of practical teaching by the researcher, questionnaires, and interviews.

1.7.1 Research instruments

Research instruments used to gather data are discussed below.

1.7.1.1 Practical teaching experiment

The practical teaching uses an experimental design. In an experimental design “the investigator has some control over what will happen to the subjects by systematically imposing or withholding specified conditions. It is a procedure for investigating cause and effect relationships by randomly assigning subjects to groups in which one or more independent variables are manipulated. The intent of an experiment is to compare the effect of one condition on one group with the effect a different condition has on a second group, or to compare the effect of different conditions on the same group. Typically, the researcher then makes comparisons between subjects who have had and others who have not had the imposed conditions”

(Schumacher,1993:32). This experimental design involves a pre-test and post-test comparison group approach in the practical teaching phase. In the pre-test and post-tests design groups for learners are given a pre-test then the practical teaching and then the post- test.

In this study a Grade 4 class was sampled and used for practical teaching. The Grade 4 class will be used for the study because this is at the transitional level when learners switch from ChiShona to English as required by the Educational Act 1987. Sampling is a way of selecting a given number of persons from a defined population as representative of that population (Borg and Gall, 1996; Chiromo 2006). When sampling, the researcher drew a representative of a Grade 4 class from a large population of Grade 4 classes in primary schools as this saves time and expenses that may be incurred if one had to study the whole population. The other advantage is that the researcher reaches conclusions about an entire population by studying only a small sample. Permission was sought from the Ministry of Education to teach the Grade 4 Class at Ross Camp Primary School in Bulawayo after hours for the sake of this research. The class was of a mixed ability stream. A Grade 4 class of 40 learners at Ross Camp Primary school was conveniently chosen for this study as it is one of the primary schools that teach ChiShona in Bulawayo where the researcher was also based. The Sample was rich in information such that it could be easily generalised to the entire population under research.

In this study, a Grade 4 class was divided into two groups of 20 learners each, Group A and Group B. Group A learnt Mathematics using ChiShona as the medium of instruction and Group B was taught the same topics and concepts in English. The first step was giving a pre-test to each group. The purpose of the pre- test was to enable the researcher to reasonably rule out any selection differences between Group A and Group B that may have accounted for differences that could be found in the results. The second step was to post-test each group on the teaching of Mathematics in ChiShona or English as a medium of instruction to a Grade 4 class.

Pre-test and post-test scores from the two groups were used to compare the performance of individual learners and the performance of the groups and the results were compiled and analysed.

1.7.1.2 Questionnaires

A questionnaire is a form prepared and distributed to respondents to secure responses to certain questions (Borg and Gall, 1996:320). Furthermore, Chikoko and Mhloyi (1995:69) say questionnaires make it possible for the researcher to measure what a person knows, likes, or dislikes and what he or she thinks about an idea. A questionnaire is therefore a series of carefully planned and appropriately worded questions or items on a specific subject set down on paper and provided with spaces where the respondent can fill in the answers or select the answer by putting a mark in the appropriate space. Collins et al (2003:183) view the questionnaire as “a printed document that contains instructions, questions and statements that are compiled to obtain answers from respondents”.

The questionnaire focuses on the issue of question wording as well as the important notions of validity and reliability. It has its own demerits that are the potential ambiguity of statements or questions. The respondent may divert the question order for him to include views exciting to himself not the interviewer. The questionnaire may not serve any purpose if the subject is not clear to respondents.

In this study the questionnaire was used to extract data that is embedded deep in the respondents' minds or within their attitudes, feelings or reactions. This instrument enabled the researcher to cover a wide area at minimum expense in money, time and effort. The questionnaire enlisted respondent anonymity and privacy that encouraged candid responses on issues like societal attitudes towards language usage. The instrument also allowed greater uniformity in the way the questions were asked and this enhanced comparability of the responses. The questionnaire instrument was self-administered in order for the researcher and her assistant to have an opportunity to explain to the participants, the purpose of the research and other items that needed clarification.

Questionnaires were used in this research in an effort to reach as many respondents as possible and to cover a broad section of the society. In this study the questionnaires were used to extract information from the learners, teachers, parents and educationists.

1.7.1.3 Interviews

This technique was used to collect data from the college/university students, teachers/lecturers, and parents in this study. Its main advantage was that it is flexible and adaptable to individual situations. It was used as the second instrument to cater for the weaknesses of the questionnaire. Collins et al (2003:177) define an interview as "...a face to face meeting between two or more people in which the interviewer asks questions while the respondent answers back". According to Denzin and Lincoln (1994:353) "Interview is the most favourable methodological tool of the qualitative research or in other words the most popular way of collecting data in interpretive research". Interview exists in three forms, namely, structured, unstructured and open-ended. As interviews are normally a face to face technique, they give the researcher an opportunity to understand the real message being communicated as the researcher is exposed to cues of communication such as facial expression, gestures and body language.

The interview's main advantage is that it is flexible and adaptable to individual situations. The interview method will enable the researcher to probe in where vague or inadequate answers are given by respondents. It also allows the researcher to remain in command of the situation throughout the investigation. All the interviews were audio recorded and transcribed, conducted in ChiShona or English to suit the different linguistic backgrounds of the participants.

Some critiques according to Miller and Glassner (1997:99) pointed out that, on the other hand, radical social constructionists suggest that no knowledge about a reality, that is 'out there' in the social world, can be obtained from the interview, because the interview is obviously and exclusively an interaction between the interviewer and interview subject in which both participants create and construct narrative versions of the social world. The problem with looking at these narratives as representative of some "truth" in the world, according to these scholars, is that they are context – specific, invented, if you will, to fit the demands of the interactive context of the interview, and representative of nothing more or less.

Face to face or telephone interviews are the types that were used in this study.

1.8 DEFINITION OF TERMS

It is important that terms used in this study are given contextual definitions.

Language is a system of words used in a speech community by the people in naming the world around them, their interaction with nature and interaction with each other in the process of production of goods and services which are necessary for their survival. Language differentiates human beings from all other animal species so it is the communicative gift of being human.

Language planning refers to an organised or systematic way of looking at solutions to language problems believed to exist in a country. Solutions to such problems are usually got from organised interventions by the state or by professional language planners. In other words it refers to an explicit and systematic effort to resolve (perceived) language problems and achieve related goals through institutionally organized intervention in the use and usage of languages.

Official language is the language used in conducting business by government in the administration of a country through the civil service, formal education, the judiciary and the commercial sector. Usually it is in this language that documents are written.

National language refers to the language that is recognised for communicating with the larger population in a country. Usually the language is an indigenous language recognised as a result of its widespread usage or numerical dominance. In this research it refers to an indigenous language given recognized status by a national government for use in various specified domains within the country.

Mother Tongue – refers to the primary language a child learns as a medium of communication before going to school. It is the language with which a child feels most comfortable. A mother tongue is the language a person, is taught to speak from birth. Mother tongue is the first language a child learns when she/he starts to speak. It is the language that the speaker is usually more comfortable to express him/herself in.

Indigenous language is a language that carries the history and culture of a given society or country. Imported languages such as English, French and Portuguese are not included in this

category. Indigenous language refers to a language spoken by a group of people who originated in a particular speech community before interference of other languages from foreign lands. The language carries the history and culture of that particular society.

Status Planning – is concerned with the role given to a language. It may involve the maintenance, extension or restriction of the range of uses of a language for particular functions, or even the introduction of an official language. It is usually carried out by non-language experts, usually politicians rather than by linguists because it is a policy activity. In this research it refers to the allocation of roles a language can assume. It is concerned with maintenance, expansion or restrictions in the uses of a language and also involves language standardization and revival of a dead language. It is status planning that can be manipulated to exclude or disempower certain languages.

Corpus Planning – is concerned with the language material and involves vocabulary expansion, changes in language structures, simplification of registers, orthographic innovation, pronunciation, style and preparation of language material. In this research it refers to the development of a language, which focuses on the implementation of decisions arising from recommendations by language experts. It is concerned with the recording of lexical, grammatical and stylistic changes of a language and is usually done by language experts.

Medium of Instruction – is the language used for teaching the various school subjects such as Science, and Mathematics in schools. It may or may not be the official language of the country. English for example can be used as the medium of instruction in schools in Portuguese speaking countries though Portuguese is the official language. It simply refers to the chosen language to be used for teaching subjects, writing textbooks, lesson plans, quizzes, tests and examinations, and assigning homework for reports, essays and reading.

1.9 THE SCOPE OF THE STUDY

The research focuses on the feasibility of using ChiShona as a medium of instruction in the teaching of Mathematics to primary schools. It involves general reading on the subject, practical

teaching and interviews. The research problem will be explored, described and explained as follows:

Chapter 1 serves as an orientation to the study by introducing and clarifying the relevant concepts. It presents the research problem, objectives, justification, theoretical framework and literature review upon which the research is grounded. It also presents the pitfalls and gaps that exist in earlier research. The research methodology will be looked at.

Chapter 2 provides a detailed review of literature. It focuses on language planning in some selected African countries and Zimbabwe with special attention given to colonial and post-colonial Zimbabwe. The development and role of indigenous African languages in education as a tool of empowerment is analytically presented. It looks at the role of mother tongue instruction in teaching of subjects in primary schools with special reference to the teaching of Mathematics.

Chapter 3 looks into the theoretical framework, research design and methodology for this research. It incorporates the population, the sample, data collection and analysis procedures.

Chapter 4 presents the findings of the empirical investigations. This includes the findings from the practical teaching, questionnaires, and findings from the interviews.

Chapter 5 deals with the discussion of the research findings. This includes the analysis of findings from the questionnaires and analysis of findings from the interviews.

Chapter 6 is the conclusion. It presents a summary of research findings and recommendations.

1.10 CONCLUSION

In this Chapter an overview of the research is given. The primary purpose of this study is to investigate the feasibility of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools. A detailed discussion of the term language planning on which the study focuses on was given. The discussion in this chapter noted that English continues to dominate, not only as the language of business, administration, politics and the media, but also as the language of instruction in almost the entire education system, while African languages like

ChiShona continue to be downgraded in the schools and vernacularised outside in the wider community.

The motivation for the study and a general outline of the scope of the study as well as the research methodology was discussed. The next chapter focuses on language planning in some selected African countries with special attention being given to colonial and post- colonial Zimbabwe. It will also delve into the historical development and role of indigenous African languages.

CHAPTER 2

LITERATURE REVIEW

“A thriving literature is a literature that forms a part of people’s living culture. It is literature written for the people reflecting their endeavours and aspirations and reaching for a significant number of them in a way that can influence their society and be influenced by it in turn”.

(Ruhumbika, 1992:80)

2.1 INTRODUCTION

While there are many factors involved in delivering quality basic education, language is clearly the key to communication and understanding in the classroom. Developing countries such as Zimbabwe are characterised by individual as well as societal multilingualism yet it continues to allow a single foreign language (English) to dominate the education sector. Instruction through a language that learners do not speak has been called ‘submersion’ because it is analogous to holding learners under water without teaching them how to swim (Magwa, 2008). Submersions make both learning and teaching extremely difficult, particularly when the language of instruction is also foreign to the teacher as is the case in the teaching of Mathematics in Zimbabwean primary schools.

The language of instruction, the language of educational formation, in any society is also the language of hegemony and power. It is the language in which basic skills and knowledge are imparted to the population and the medium in which the production and reproduction of knowledge takes place. In this chapter the focus is on the literature review with regard to the teaching of Mathematics using ChiShona as a medium of instruction. The role of mother tongue instruction in teaching of subjects in primary schools with special reference to the teaching of Mathematics will be looked at in order to provide a firm foundation into the discussion of how ChiShona can be used in the teaching of Mathematics in primary schools. Furthermore the chapter will look into other researches that looked into the ChiShona cultural infusion of mathematical ideas in the teaching of Mathematics which gives a foundation to the learners and teachers on how mathematical concepts can be taught using ChiShona as a medium of instruction in primary schools.

2.2 GLOBAL PERSPECTIVES OF LANGUAGE POLICY

The colonisation of Africa brought with it not just economic and political subjugation but also resulted in the loss in the use of indigenous African languages. The loss of a language could mean the death of a culture and this impacts on the people's ability to earn a living, (Muindi, 2002). It was only after the Berlin Conference of 1884, that Africa was segmented into various colonies and the issue of language started to take centre stage. This partition of Africa saw African countries being defined and defining themselves according to languages of Europe, for example, Anglo-phone Africa, and Franco-phone Africa. Throughout Africa, the language of education included a colonial language, which is a language of wider communication. Thus all former British colonies have English, for example Zimbabwe, all former French and Belgian colonies have French, for example, Algeria, and all former Portuguese colonies, for example, Angola and Mozambique, have Portuguese (Magwa. 2008).

The colonial masters then introduced various policies that were aimed at dominating the African communities. Institutions which could be referred to as ideological state apparatus were established with the sole purpose of facilitating the total annihilation of indigenous African languages and African cultures. Language became a barrier between the majority of citizens in African societies and economic prosperity. It provided selective access to economic participation and occupational mobility, in the education and development of people's knowledge, skills, norms and values.

Missionary schools, and the judiciary systems controlled by the colonizing state, enacted laws that promoted separate development between the whites and the natives of Africa. However, colonialism was not able to totally destroy the languages of African people. African people continued to use both their oral languages and those orthographies by colonialism to defy the new invasive system. It was not until the era of African independence that swept Africa beginning in the 1950s that the issues related to language planning and language policies for Africans begun to be deliberated on.

According to Mavesera (2009:19) the current state of affairs in all African countries is such that the official language is a foreign language like English, French and Portuguese. African countries that continue to provide educational services in ex-colonial languages continue to

empower these ex-colonial languages. Colonialism imposed a totally different approach to the use of language in African education and the conduct of official affairs. Its object was to replace the sovereignty of the mother tongue with the language of colonial power (Prah, 1993:27). It has left policies of the medium of instruction as well as volumes of literature printed in the colonial languages such that it somehow creates an advantage to continue with the language policies of the past simply to take advantage of available resources.

Tanzania, Somalia, Botswana, and South Africa have explicit language policies with regard to language of instruction and education within their societies. The successes experienced by Tanzania in the swahilisation process are a result of heavy financial and human resource investment to meet the different linguistic needs of the state and society. Tanzania has achieved a considerably high degree of democratisation through deliberate language choice and language policy. English was replaced by Kiswahili as the sole language of parliamentary business, both written and oral that enabled Tanzanian people to participate in political and legislative issues (Fasold, 2001). Kiswahili officially became the medium for primary school education. This move opened floodgates to the “common people” who could now compete with members of the educated elite for parliamentary seats as they could use their Kiswahili oratorical skills effectively to influence legislative decisions. Other than empowering its speakers, the move had an effect of elaborating the language bringing in new technical terms for legislative register. The participation of more citizens in the Bunge has enriched and empowered Tanzanians to the effect that they realize that their language has capacity for abstract, intellectual and scientific thought, (Bamgbose, 1991).

In Somalia, President Mohammed Saidi Barre’s military dictatorial rule transformed the linguistic landscape overnight. In 1972 he declared that Somali replaces Arabic, English and Italian and this was successful. The Somalia situation is of interest to the study in a follow up of a decree on the Somali language or the Somalisation of the language as Warsame (2001:341-360) chose to refer to the National language policy in Somalia. He examined how an indigenous African language policy was promoted under “a strong and totalitarian” government. According to the Government of Somalia, under the supreme Revolutionary Council, Somali was the

language of national identity that had the capacity to remove a greater percentage of the legacy of colonialism hence, the need to promote the language. It is the “Mother tongue of more than 95% of the Somali population and had a long and brilliant oral tradition” (Warsome, 2001:343). With such characteristics it was therefore a symbol of the Somali nationality and would be the ideal language to deal with the political, economic and social issues in the envisaged liberated Somalia.

To achieve this, the Somali Government took a radical stance after defining who was a Somali. According to Latin (1977) as quoted by Warsome (2001:343) “the first citizenship law in the northern regions defined a Somali as any person whose mother tongue is the Somali language and who follows Somali customs”. In this case language and customs are the defining factors of who qualifies to be granted citizenship status in Somalia. This position was further qualified by the Government at the merger of the Northern and Southern regions as observed by Warsome (2001:343) “The first citizenship law of the merged republic defined a Somali as any person who by origin, language or tradition, belongs to the Somali nation”. The recognition of the Somali language is a very positive aspect in the thrust to self determination, a feat that is dreaded by most African Governments. Some of its immediate gains were the standardization of the Somali education system, the raising of the literacy level and the demonstration of the ability of the Somali language to adopt and adapt “qualities” from other languages such as the use of the Latin script. The final achievement was the establishment of a national language.

In South Africa, when the Afrikaner National Party came to power in 1948, Afrikaans received a major political boost. From 1948 to 1994, South Africa was officially bilingual, the irony being that the two official languages, English and Afrikaans, were the languages of the minority white population. Whilst African languages were promoted in the homelands, the lion's share of government support for languages was directed towards Afrikaans and English. The Afrikaner-dominated National Party government invested tremendously in the corpus development of Afrikaans. As Raidt observes, "Afrikaans was perceived as a possession of the white Afrikaner population, who felt oppressed by the British. The language became the symbol of national

identity in the struggle against English supremacy" (Raidt, 1999: 163). The political will to transform Afrikaans into a language that could effectively take a leading role in various domains led to the creation of massive resources such as terminology banks, a wide range of dictionaries, and a significant literary output.

The Bantu Education Act of 1953 placed African education under the control of the state. African schools were linguistically zoned. The mother tongue was the medium of instruction up to standard seven. Thereafter, English and Afrikaans were used equally as media of instruction (Henrard, 2001). The equal use of English and Afrikaans as media of instruction (also known as the "50/50" policy) was a serious stumbling block to effective learning because of the sudden shift from African languages to Afrikaans and English. To make matters worse, African learners had poor levels of competence in the two new media of instruction. The curriculum was poorly developed and was therefore not geared towards producing educationally well empowered Africans. There was a deliberate attempt to limit Africans' access to the languages of socio-political and economic power i.e. Afrikaans and English.

South Africa's new constitution, which was adopted in 1996, recognises eleven official languages, nine of which are the previously marginalised African languages. The official languages then are: Sepedi, Sesotho, Setswana, siSwati, Tshivenda, Xitsonga, Afrikaans, English, isiNdebele, isiXhosa and isiZulu. Kamwangamalu (2000) has observed that contrary to the aspirations of the constitution, there is no parity of esteem and equality among the eleven official languages. He notes that a language hierarchy in which English is at the top, Afrikaans in the middle, and the African languages at the bottom, is the order of the day. He goes further to show how English dominates domains such as the mass media, education, the legislature, the judiciary, the army, and so on. Basically, it is still English and Afrikaans that are the languages of economic and political power. Thus, the majority remains disadvantaged because, to borrow Bamgbose's (2000) terminology, language excludes them from active participation in political and economic endeavours. As Chisanga has put it, "it will require a great deal of political will and serious financial commitment to bring the nine African official languages to a level even

remotely comparable to that of English and Afrikaans in terms of linguistic development with the accompanying written materials needed in the education system" (Chisanga, 2002: 103).

Despite the fact that South Africa is travelling on a rather bumpy road towards the implementation of a language rights-oriented language policy, the country, backed by its enormous resources, still remains Africa's best model and leader in language planning. Although the gains South Africa has made in the past decade have been remarkable, there is still more that needs to be done in involving African Languages as media of instruction even for science subjects. It is certainly no easy walk to linguistic freedom and equality.

In Botswana the official policy places English as the official and Setswana as the national language of the country. Setswana is spoken by at least 80% of the population as a mother tongue. According to Roy Campbell and Gwete (undated:183) the language policy stipulates the use of both Setswana and English in education. Setswana is the medium from Grade 1-4 while English is taught as a subject. English takes over as the medium from Grade 5 onwards up through University, while Setswana is taught as a subject. All school-leaving examinations, except for Setswana are in English. The failure of Setswana to be used as a language of instruction in education has been described by Tsonope and Janson (1991:75) as neglect in the sense that it has been seen as not interesting for the generation of planners.

2.3 LANGUAGE POLICIES AND PLANNING IN ZIMBABWE

This section examines the education system and the language policy Zimbabwe inherited from Rhodesia and how this system evolved. The main objective is to analyze how colonial politics shaped the language policies in Zimbabwe, as well as the impact these language policies had on post-colonial Zimbabwe's education system. It discusses language planning and policy-making from both a historical and contemporary perspective in Zimbabwe with particular attention being given to language policies and planning in education. Focus is on the development of colonial and post-colonial language policies with regard to the use of indigenous African languages, for example Chishona and Ndebele, as languages of instruction in the learning and teaching of subjects such as Mathematics. Zimbabwe inherited from Rhodesia a racially structured system of

education in which two parallel systems existed. The European system was designed to serve and promote white interests and ensure white domination and superiority over blacks while African education was really an education designed to perpetuate the subjugation of blacks by whites (Zvobgo, 1986:16).

2.3.1 Colonial language policies in Zimbabwe

In this section, the focus is to examine the way the Rhodesian Government constructed and implemented its educational and linguistic policies and also critically discusses the role African languages played in the teaching and learning of science subjects such as Mathematics. The British South Africa Company was the first colonial power and it regarded proficiency in local African languages as a prerequisite for the facilitation of collection of taxes, knowledge of native laws and customs that enabled the enforcement of colonial orders.

According to Magwa (2008: 100) the education and language policies in colonial Rhodesia were deeply influenced by the ideals of the father – figure, Cecil John Rhodes whose vision and determination were chiefly responsible for bringing the European settlement north of the Limpopo into being. Rhodes held a fervent belief in the superiority of Anglo-Saxon culture and institutions over blacks in Africa hence the European community in Rhodesia thought of themselves as a people apart, separated from the African “tribes” around them by the traditions of a superior civilization.

The Rhodesian education system regarded African languages as crude and uncivilized (Ngara, 1982:23). English occupied a central position in the curriculum, and African languages such as ChiShona, received scant attention in black schools and none at all in those for whites. Part 3 of the Rhodesian Education Act Chapter 82 Section 22 provides that; “Subject to the provision of this part, the English language shall be the medium of instruction at all schools”. This provision is emphatic and clear on what language shall be used as medium of instruction in schools as a matter of policy. It gave very little or no room for indigenous African languages such as ChiShona, to be used as a medium of instruction in Rhodesian schools. This position by the Education authorities helped the colonial government to achieve its goals and objectives of

propagating its ideologies and values (Makanda, 2009). It helped the government map out the course of action with the exclusion of other languages.

The Rhodesian Education Act Chapter 82 section 22 , further states that “If at the time a pupil is first instructed at any school, if he does not have an adequate knowledge of the English language, he may be instructed in his vernacular language at that school or at any other school he may thereafter attend for a period not exceeding twelve months or as the case may be, for periods not exceeding the aggregate of twelve months, but only in order to facilitate and expedite his use of the English language”. This provision had an effect of marginalising the use of African languages as languages of instruction in the schools of Rhodesia. Such provisions can explain why natives across the continent were subjected to dehumanizing experiences correctly noted by Ngugi Wa Thiongo (2006:57) in BBC Focus on Africa that “Our languages were associated with negativity and humiliation whereas English was associated with positive images of knowledge, intelligence, power, reward, applause. Thus the acquisition of a colonial language was more than a question of linguistic skills; it was also a process of bending the mind away from our own and towards another’s. The result is devastating to the psyche of the educated African who often is not simply proud of his mastery of English but also of his ignorance of his mother tongue”. The use of English in schools achieved the intended purpose which was to educate the cheap labour force that would perpetuate the values and standards of their colonial masters.

The Rhodesian education enforced a separate system on which there were Whites only, Blacks only, Asians only schools. In these schools English was a language of teaching and learning and was also studied as a subject giving little or no room for indigenous African African African languages such as ChiShona to be used in the teaching of other subjects such as Mathematics. The Rhodesian government’s promotion of indigenous African languages, if any was meant mainly to gain control of the African population.

Missionaries regarded expertise in indigenous African languages as an indispensable tool for missionary work in colonial Zimbabwe. Like the British South Africa Company, missionaries encouraged a bilingual language policy amongst the Europeans. However, unlike the British

South Africa Company the missionaries' emphasis was on written or textual skills. For the religious conversion to be successful and for the conversion to have long-term effects, Pennycook and Makoni (2003) argue that it was necessary for the missionaries to articulate their worldviews in a medium that would achieve maximum effect hence the introduction of indigenous African languages as subjects in schools (Magwa, 2009). Their sole aim was to translate the bible and use the bible and other religious literature to "tame" the Africans.

Development of ChiShona writing system was started by missionaries and later standardised by Doke in 1931. With a writing system in place, ChiShona language now appeared in oral and literary form. Representations of the different missions, having failed in their own attempt to develop a common system of writing ChiShona, commissioned the South African linguist C M Doke, to undertake a dialect survey in 1929 and make suggestions about a common writing system. (Chimhundu, 1992). In other words the purpose of his visit was to make a thorough survey of the language position throughout the country with a view to advising the Language planners of Government upon a uniform orthography and a possible unification of dialects, for the standardization of an official language for that part of the country inhabited by the Shona speaking people. After the choice of the language to use, the missionaries worked in a more formal language planning by developing the indigenous African language's orthographies. This also included the decision on when to introduce English as a foreign language and to who was also part of the language planning process during the colonial era. The colonial administration, however introduced English language as the linguistic tool of administration and power. Indigenous African languages were considered inadequate for administrative purposes. The mother tongue was used in lower primary school. English was the passport to better opportunities.

In as much as the colonial governments are applauded for promoting indigenous African languages, they never made an attempt to use indigenous African languages as vehicles of education and languages of instruction for other subjects. Ngara (1982:17) argues that no attempts have been made to develop ChiShona language into a vehicle of education and technical development. The colonial government opted for literacy and formal education offered in the

second language while ChiShona and IsiNdebele were taught as subjects. Missionaries were not involved in preparing indigenous African languages for their new functions in society, that is, ChiShona and Ndebele were restricted to being media of educational instruction for the first three years of school. This created fallacies that ChiShona and IsiNdebele occupied a status above other indigenous African languages and a status below English. These notions have shaped the linguistic attitudes of many regimes that ruled Zimbabwe up to the present day.

2.3.2 Post-colonial language policies in Zimbabwe.

At independence in 1980, Zimbabwe inherited a racially structured system of education where one part, the European, was designed to serve and promote white interests and the other, the African, which was really an education system designed to perpetuate the subjugation of the blacks by the whites. The European and African education systems were indicative of the racial basis of colonial education. It is this educational system and the racial policy which compelled the 1980 government to effect changes in education and language policy at independence (Magwa, 2009). Realising that Zimbabwe requires a high level of manpower, technology and contact with the external world (Mutasa, 2004 :5), it made sense to continue with colonial legacy for two reasons. Firstly, to keep track with global developments, maintain internal unity and contacts with friends of Zimbabwe. Secondly, there was a strong motivation to adopt incremental policies that capitalise on available resources and ride on existing structures. ChiShona and IsiNdebele were granted national status. The national status granted to ChiShona and IsiNdebele is largely theoretical, as very little has been done so far to develop and promote these languages and to diversify their functions. Thirty years after independence, English continues to dominate not only as the language of business administration, politics and the media, but also as the language of instruction in the whole education system at primary, secondary and tertiary levels, while Chishona continue to be downgraded in the schools and vernacularised outside in the wider community.

Chimhundu (1987) argues that policy on language in schools and colleges is quite confusing. Soon after independence, ChiShona and IsiNdebele were actually dropped from the list of examinable subjects at Grade 7, the last year of primary school. This earlier policy decision effectively downgraded indigenous African languages in the whole education system, even

where they continued to be taught as subjects. The net effect of this decision was that no indigenous African language was made compulsory at any level in the whole education system, while English continued to be a requirement for all forms of education and training and for university entrance (Mavesera, 2009).

2.4 THE ROLE OF LANGUAGE IN EDUCATION

Education is the basis of mass participation, a means to upward social mobility, manpower training and development. Knowledge is transmitted through language hence the significance of language in education. (Bamgbose, 1991:62). Bamgbose's views were quite informing to this study since the concern of the study was to explore possibilities of using language and literature to empower indigenous African people. Bamgbose (1991), Benson (2004) cited in Brock-Utne and Hopson (2005) and Webb (2002) agree that education through mother-tongue instruction opens doors for mass participation. The study maintains that the role of education in development must be concerned with the liberation of the human potential for the welfare of not only the individual but also the community at large. Language is considered a possible empowering factor in the education process. The study explores further the role of language in education under language and medium of instruction, and indigenous African language preparedness for use in education discussed below.

2.4.1 Language and medium of instruction

Bamgbose (2000: 58-59) mentions that UNESCO experts who met in Paris in 1951 to consider language as a medium of instruction concluded that:

On educational grounds, we recommend that mother tongue be extended to as late a stage in education as possible. In particular, pupils should begin their schooling through the medium of the mother tongue, because they understand it best and because to begin their school life in the mother tongue will make the break between home and school as small as possible.

The medium of instruction is viewed to have a strong bearing on how the learner will adjust to school life as it either provides a smooth handover-takeover from the home to the school system or a rough grab that might result in frustrating the learner. The 1951 UNESCO report actually recommended on psychological, social and educational grounds that children be taught in a

language they know effectively, which will normally be the mother tongue of the children, Webb (2002:192). Language may shape socio-economic and political power relations hence it is determined by ideological, economic and political factors which link with linguistic factors. For a language to survive, it must be used for a wide range of functions otherwise it begins to wither and die.

A language that a child knows effectively should be the language of education and training. The language used for education purposes should be a language capable of opening communication barriers. If a language creates a host of “misunderstood” then the “barriers” cannot be easily cleared. Hubbard (1992:11-62) identifies among other barriers to study, the misunderstood word as the third and most important barrier to study. (ibid: 42) The barrier clearly demonstrates the importance of language in the comprehension of concepts in the learning process. If a word can be an obstacle to learning, it is assumed that a language would cause a serious deterrent to learning. Benson (2004) and Webb (2002) concur that the use of indigenous African languages as languages of learning/teaching makes parent involvement in learner’s formal education possible, the cultural and emotional transfer from home to school and back less traumatic (Webb, 2002:191).

UNESCO (1992a: 23) cited in Bamgbose (2000:58-59) provides a checklist for the ideal language of literacy/learning. The language should have some or all of the following: -

- It should be familiar to and preferred by learners and teachers
- It should be spoken by a large number of people over a large area
- It should be useful for communication in local and national life and especially working life.
- It should be well supplied with teaching materials.
- It should be provided with enough printed text to prevent newly literate people from forgetting what they have learned.

The checklist looks quite plausible although in Africa events have not always been influenced by such logic. On attainment of independence, African governments have concerned themselves much about education for all and the need to increase literacy rates. Little and in most cases lip service attention has been given to language policy especially as it relates to educational instruction. The paradox is that educational plans and programmes are often designed to pay more attention to the structure of educational system and curricula than to language policy, (Bamgbose, 1991).

Prah (2001b.) in Brock-Utne and Hopson (2005:27) postulates that language of education is the language of hegemony and power. He asserts that knowledge is accumulated and deposited in the language of instruction and where language of instruction is the same as mother tongue it gives confidence to a people with respect to their historical and cultural baggage. Where a people lack confidence and respect of their cultural heritage there is bound to be frustration, alienation cultural dominance and under- development.

Prah (ibid) acknowledges that in free societies knowledge transfer takes place in the language in which the masses are most creative and innovative. Linked to Prah's argument, Mutasa (2004:38) educates and advises that "...to guarantee success, knowledge and skill must be disseminated in languages easiest for millions to understand". However, Bamgbose (1991:69) clearly articulates the dilemma of African nations. He notes that African nations simply carry on the legacy of the policies of the past. This is evidenced by the roles assigned to the languages, (Bamgbose ,1991:69). Mackey (1984:37-49) argues that education in any language often contains the study of the people traditionally identified with the language. Mother tongue instruction should be promoted in order to enhance concept formation. Benson (2004) and Webb (2002) argue that mother tongue education makes cultural and emotional transfer from home to school easy. NEPI (1992:13) cited in Bamgbose (2000:93) confirms that mother tongue is associated with inferior education offered under the Ministry of Bantu Education in apartheid South Africa. English is therefore perceived as a gateway to better education. As a result of the colonial legacy, policy on indigenous African languages as a medium of instruction has been notoriously unstable (Bamgbose ibid).

Be that as it may, scholars like Rubanza insist that African development is impossible without the use of African languages, (Prah, 2002:44). Rubanza maintains that ethnic languages enable those who interact to make relevant connections with their lives beyond the school. Rubanza (1996) argues that for some;

English = Education

English = School uniform because you take it off when you go home.

Ngara (1982:23) while referring to Zimbabwe had earlier pointed out that for many Africans to be educated was equivalent to acquisition of a European language thereby corroborating Rubanza's argument. Observations have revealed that many Zimbabweans still hold the belief that to be educated is to acquire knowledge through the medium of English.

In the view of the study a language that helps the learner grasp new knowledge, apply the new knowledge to real life situation beyond the classroom and if possible share the new knowledge with immediate community, is a language more empowering. The language encourages development and transfer of knowledge in a way that does not leave learners alienated from their immediate environment. Such a language will not be equated to school uniform that can be taken off when school is over. After all the whole purpose of education is not to educate so that people can put aside what they will have learnt when school is over. The purpose of education is to equip the learner with skills for life that can be applied throughout the process of living.

Choice of language of instruction is influenced not by pedagogical factors but other factors like perceived status of the language. English is perceived to be more powerful and to provide access to information and technology. Adams and Mayes (1998) remarked that we should not happily and proudly put our children through education processes, which render them illiterate and even "unoral" in our African languages. On the other hand Hayford (1911:17) as cited in Anyidoho (1992) emphasises "...no people could despise its own language, customs and institutions and

avoid national death”. The role of language has been aptly presented by Skutnabb-Kangas (1998:13) who reasons that English is an instrument of imperialism in developing countries. Prah (1995 ,b) and Skutnabb-Kangas (2000) argue that development in Africa will not be forthcoming until we start using African languages as languages of instruction from beginning to end of the education process. It is necessary to take a leaf from the views of these authorities and proudly use indigenous African languages in accessing information and technology.

Arguments presented by various authorities discussed above are in keeping with the checklist provided by UNESCO (1992a: 23) as cited in Bamgbose (2000:58-59). The use of mother tongue as a medium of instruction ensures that learners are taught in a language spoken by a large number of people, which language is useful in local and national life and the language is familiar to both learners and teachers. In the case of Zimbabwe, ChiShona would be the most appropriate language that suits the checklist if the choice were to be reduced to one. Chimhundu et al (1998:2) argue “Shona is the biggest language group and is technically the most viable choice for a national language if the choice were to be reduced to one...” However in the interest of democracy, the choice should not be limited to one. Democratic principles dictate that there is recognition of the contribution of many to the global picture. The study maintains that the language of instruction should be one that matches the UNESCO checklist and provides learners with as little barriers to learning as possible. The language of learning should facilitate easy acquisition of knowledge and skills that can be practically applied to the learners’ immediate environment.

It is argued that language is the vehicle of thought and intelligence. It is through language that ideas are conceptualised, thoughts organised and memory systematised. A close relationship exists between language, thought and intelligence, (ADEA, 1996a: 45-6). Batibo (2005:36) maintains that indigenous African languages should not be seen as stumbling blocks to national unity, national identity and national development but should be regarded as resources for people’s aspirations and full participation in national development. In view of this the language of education should be that which offers potential for full participation by the masses. However

the question that remains is: “Are African languages in a position to be effectively and efficiently used as media of instruction in education?”

2.4.2 Indigenous African language preparedness for use in education

Bamgbose (1991:72) claims that, “No matter how large the population of speakers of a language is, it is only when the language has been reduced to writing and materials made available in it that it can be used in education”. Pertinent to the use of a language in education is not only the population of speakers but whether the language is also available in print media for resource materials. The use or non-use of indigenous African languages in education is largely a function of the colonial heritage. As a result of colonisation African countries were divided into two groups.

- (i) a group of users – those countries which used indigenous African languages as a medium of instruction in early primary education and taught as a subject at secondary.
- (ii) Non-users – where formal education was conducted in the colonial language (Bamgbose, 2000:49)

The group of non-users comprised French and Portuguese colonies. Even the British colonial education policy of mother tongue medium which received strong endorsement from specialised commissions and agents like the Advisory Committee on Native Education in Tropical Africa 1925, 1927, 1935 and 1943 and the UNESCO meeting of experts, (Bamgbose, 1976:10), still remained faulty. English remained the dominant medium of instruction at higher grades and as a subject. More and more materials were written in English than in indigenous African languages. As superior concepts and skills are acquired at higher levels of education this reinforced the idea that technical terms and scientific concepts could not be expressed in indigenous African languages. Indigenous African languages were thus pushed to the periphery, valued only for bridging the initial levels of education and higher levels of learning even among the group of

users. Even among the group of users, superior concepts and skills were reserved for English thereby down grading the indigenous African languages.

Decades after attaining independence, African countries remain prisoners of the past with constraint reinforced by the argument that English language is going to be needed for higher education, technology, science and industry (Bamgbose, 1991:71). Anyidoho (1992:42 – 63) reports that in 1919 the First Pan-African Congress at Paris resolved that “... it shall be the right of every native child to read and write his own language and the language of a trustee nation at public expense”. Resolutions have been made yet it has taken Africa almost a century to effectively implement the pronouncements. The question is what and where is the problem? The challenge is that African languages have not been associated with access to modern education and technology, so non-African languages are viewed to equip the learner with access to rapid socio-economic development.

Speakers of African languages are not economically and technologically empowered to determine their socio-economic development. Mutasa (2006:114) maintains that indigenous speakers of African languages need to be empowered to own companies then they can proceed to innovations, to naming and marketing their innovation, then and only then can indigenous African languages be empowered. The study proposes that linguistic empowerment could precede economic empowerment. African governments could legislate language policies that empower their languages. Indigenous African languages could be made a prerequisite to foreigners who want permanent residence in Zimbabwe. By so doing the domains of operation for indigenous African languages would be expanded to the business and tourist sectors. There might be motivation for non-African language speakers to learn indigenous African languages in order for them to access certain privileges. This will attract foreign attention. In that way, indigenous African languages may be popularised through tourism and, subsequently they will be empowered.

Bamgbose (1991:74) postulates “modern education requires instruction not in more and more languages but in the most effective language”. The study observes a dilemma emanating from

the state of development of African languages that influences their selection in the education system. Obviously it is a tough competition for African languages to compete against non-African languages like English that have a long literary tradition. Other than oral use, languages are developed through written form. Those languages, which have volumes and volumes of literature, reflect a more developed status. The other problem might be that concerned with preserving a people's culture through language against the interest of the child in terms of effective education for the modern world. African nations are thus confronted with a puzzle of saving the language or serving the child's interests. The new world is a world of decrees on rights hence certain actions targeted at maintaining indigenous African languages may be viewed as interfering with individuals' rights to choose a language of their preference.

The study argues that African governments should not pay lip service to mother tongue education while they quietly continue with a language for wider communication medium of instruction. African languages still have the potential to be effective languages of education. It is important to remember that in spite of all the constraints learning through mother tongue will provide a smooth transition from home to school. However, a challenge that remains is that even among the Africans themselves, competition is rife to speak English like the British or even better. In such a scenario it is very difficult to find a country with political commitment to mother tongue medium of instruction in a manner proposed by Prah (1995a, b) and Skuthabb-Kangas (2000). It is argued that harmonisation of orthographies will alleviate the problem of resources in some of the languages. There is need to move from the elite-oriented type of education and move with current tides of mass education offered through indigenous African languages. A language battle cannot be won in one day but each step taken contributes to final victory. African governments should vigorously pursue the issue of mother tongue instruction guided by the observation that any language is capable of rising to a dominant position. Had the English not valued their language, Latin would still be the "world" language. By the same token if Africans do not value their languages, English and other non-African languages will remain "the world languages".

2.4.3 Language policy in education

Since independence in 1980 Zimbabwe does not have an Official Language Policy Document that specifically focuses on the use African Languages as languages of instruction (Hadabe,1996). A socio-linguistic description of the functions of the three main languages in Zimbabwe is given below.

Table 2.1: Language situation in post-colonial Zimbabwe

LANGUAGE	STATUS/DOMINANCE	FUNCTIONS
English	Official status dominance	<ul style="list-style-type: none">- international communication (UN and AU)- wider communication (lingua franca)- educational instruction- school subject- literary for writing books- technical for scientific and technical communication- religious worship
ChiShona	Numerical dominance	<ul style="list-style-type: none">- group language- school subject- literary

		- religious
IsiNdebele	Recognised language	<ul style="list-style-type: none"> - group language - school subject - literary - religious

Adapted from Ngara (1982:28)

Naturally, the indigenous African languages are not used for wider communication or as languages of instruction. It was against this backdrop that the President of Zimbabwe instituted a Commission of Inquiry into Education and Training to establish through thorough study among other things specific policy initiatives on indigenous African languages. The Commission was mandated to recommend specific policy initiatives on indigenous African languages with a view to their wider use generally and more specifically in the education and training systems in Zimbabwe (Mavesera, 2009).

The legal status of language in Zimbabwe is stipulated in the 1987 Education Act. It states that “English is the official language and ChiShona and Ndebele are national languages with restricted official use.” (Roy-Campbell and Gwete, undated:208). The UNESCO Regional Office for Education in Africa defines official language and national language as follows:

Official Language: a language that is used for government business and other formal purposes within a country, e.g.

English , French or an African language like Swahili.

National language: maybe an African Language that is also an official language , or a language that has been decreed to be a National language of a country.

(Mkanganwi,1992:10)

In addition, five of the minority languages are recognised by the Zimbabwean government. The education language policy as enunciated by the Education Act 1987 (as amended in 1996) states that:

Only three languages are recognized as the main languages of Zimbabwe, namely ChiShona, Ndebele and English and these were to be taught in all primary schools. The amended section reads as follows:

Section 62: Languages to be taught in schools

- (1) Subject to this section, the three main languages of Zimbabwe, namely ChiShona, Ndebele and English shall be taught in all primary schools from the first grade as follows;
 - (a) ChiShona and English in all areas where the mother tongue of the majority of the residents is Shona or
 - (b) Ndebele and English in all areas where the mother tongue of the majority of residents is Ndebele.
- (2) Prior to the fourth grade, either of the language referred to in paragraph (a) or (b) of subsection (1) may be used as the medium of instruction depending upon which language is more commonly spoken and better understood by the pupils.
- (3) From the fourth grade, English shall be the medium of instruction:-provided that ChiShona or IsiNdebele shall be taught as subjects on an equal-time-allocation basis as the English language.
- (4) In areas where minority languages exist the Minister may authorize the teaching of such languages in primary schools in addition to those specified in subsection (1), (2) and (3).

The amended section had a lot of limitations in the implementation of the education policy in Zimbabwe as it gave the Minister a lot of leverage to decide on which languages can be taught

and those that cannot be taught. The Act states, "...the Minister may authorise the teaching of such languages..." The criterion to be used by the Minister is not specified. Whether it is the minister's discretion or whatever is not clarified. If the Minister 'may' it presupposes the he 'may' as well not. Then it means the circumstances under which the Minister 'may not' authorise the teaching of a language are not specified. The very possibility that some languages may and some may not be taught when they fall within the same category is likely to cause discontent on the part of those whose language has not been selected. The Minister may authorise the teaching of the indigenous African language but using it as a language of instruction for other subjects such as Mathematics is not legislated. Information on Science and Technology is not accessible in indigenous African languages for the majority of people.

As shown above, although all the major languages enjoy some degree of prominence under the Act, English continues to enjoy the central role as indicated in subsection (3) in the non-obligatory nature of the early primary school mother tongue instruction. This recognition is largely in word only. According to the 1987 Education Act, ChiShona and IsiNdebele were to be used as medium of instruction in lower primary schools before shifting to English in the fourth grade. This continued importance given to English even in post-independence Zimbabwe reflects a disconcerting continuity with colonial language policies in which English dominated indigenous African languages. Ngara (1982) and Nziramasanga (1999) agree that indigenous African languages are pivotal to transmission of the Zimbabwean culture, values, norms and creation of a national identity. Nziramasanga (1999) further argue that the use of indigenous African languages in education is part of the struggle towards reform of African education systems for sustainable development.

According to Makanda (2009:15) the constitutional section dealing with language in Zimbabwe does not fully address the problem of where the people who speak, say IsiNdebele and Nambya, as it also does not spell out what would happen in the situation of non-compliance regarding to the use of the minority languages as a medium of instruction at primary level hence, it is common knowledge that English is mainly used as the media of instruction from the first grade with teachers arguing that they are preparing the pupils for the upper grades. Section 12 of the

Education Amendment made some changes in the wording of the provision of section 62 which has been repealed and thus quoted below as follows:

12 new sections substituted for section 62 Chapter 25:04

Section 62 of the Principal Act is repealed and the following is subtitled: 62 languages to be taught in schools

- (1) Subject to this section, all the three main languages of Zimbabwe, namely ChiShona, IsiNdebele and English, shall be taught on an equal time basis in all schools up to form two levels. (Former group A schools included)
- (2) In areas where indigenous languages other than those mentioned in subsection (i)
- (3) The Minister may authorize the teaching of foreign languages in schools.
- (4) Prior to form one, any one of the languages referred to in subsection (1) and (2) may be used as the medium of instruction, depending upon which language is more commonly spoken and better understood by the pupils.
- (5) Sign language shall be the priority medium of instruction for the deaf and hard of hearing.

Subsection (4) of this amendment is commendable as a move towards a positive direction in the use of ChiShona and IsiNdebele as media of instruction in teaching primary school subjects. However it should be pointed out that implementation of this section of the policy still remains to be explored. In practice, IsiNdebele and ChiShona are not being used as the media of instruction in many schools (Magwa 2008). Even in those areas where the minority languages are predominant, no serious attempt is made to teach or use them. The other challenge that remains is to change the attitudes of both parents and teachers who might be conservative and resist change. For as long as indigenous languages are not directly linked to benefits that accrue at the end of the educational experience, the Zimbabwean society is likely to continue clinging to prejudices that English is the gateway to success (Mavesera, 2009).

According to Thondhlana (2005:33) in Zimbabwe most schools prefer to use English as a medium of instruction from the outset to ensure their students' proficiency in English, which is considered the language of power and economic well being than the indigenous African languages. English remains entrenched as the medium of instruction as well as the key to qualification for education and training at all levels and therefore becomes the key to employment and upward mobility.

Choosing a language or a group of languages for specific functions in a country has far reaching implications on the status of that language or group of language (Hadebe,1996). The language of educational instruction signifies the importance of that particular language, in that it is chosen to transmit knowledge from generation to generation and from oral to literary form which makes it a permanent symbol of communication. The language is entrusted with handing over school graduates to the job market and the wider community. There is therefore need to link socio-cultural and economic developments to indigenous African language usage in education and social life in general.

Ngugi wa Thiongo (1986:4) stated "the choice and use to which language is put is central to a people's definition of themselves in relation to their natural and social environment, indeed in relation to the entire universe." The choice has implications for the educational system as well as on the economics of language promotion. Each language to be taught must serve a purpose otherwise there would be no justification for human, material and financial resources expended on teaching a language for its sake. The difficulty lies in specifying which language does what. This results in ambiguously worded policy statements as noted by Bamgbose that:

Language policies in African countries are characterised by one or more of the following problems; avoidance, vagueness, arbitrariness, fluctuations and declaration without implementation.
(Bamgbose, 1991:111)

The characteristics best describes Zimbabwe's policy towards indigenous African Languages.

In our education system in Zimbabwe we chose English for operational efficiency and nationalistic goals as most African states perceive languages of wider communication to be neutral. IsiNdebele and ChiShona were obviously presumed to be serving nationalistic priorities. There, English, ChiShona and IsiNdebele are serving the socio-political and educational functions in Zimbabwe.

After independence, English continued to dominate in both the electronic and print media. ChiShona is not being used in the Internet, media, medicine etc. In tertiary education and secondary schools, English trained teachers outnumber the ChiShona trained teachers. This has encouraged the development of English as a language and disadvantaged the development of indigenous languages such as ChiShona and compelling teachers and learners of ChiShona to look down upon their language. In fact, English has established itself in domains such as administration, education, jurisdiction and other government controlled and non-governmental institutions to the extent that it has become a major impediment, a brake or constraint on the promotion and development of African languages (such as ChiShona) as argued by Mutasa (2003).

During colonial Rhodesia (now Zimbabwe) “the belief that English was a superior language to ChiShona (African language) was certainly there (Ngara 1982:24)”. After independence these attitudes continued but most of the school children were conscientized to appreciate their own cultures and languages. According to Dube (1997:11) these attitudes may have improved at independence but now it would appear they are contributing to the marginalisation of indigenous languages such as ChiShona and IsiNdebele in their use as languages of instruction in Zimbabwe primary schools.

2.5 LANGUAGE AND MOTHER TONGUE INSTRUCTION IN ZIMBABWE

The need to consolidate Zimbabwe’s political independence with linguistic independence has been enshrined in the claim by the Inter-African Bureau of Languages, a board accountable to the Organisation of African Unity, which conclusively puts it that “there are several advantages in using the mother-tongue as a medium of instruction: the development of critical powers, the

fostering of effective communication, the enhancement of deeper cultural understanding and the increasing of national consciousness” (Chiwome and Thondhlana, 1989:159). This line of thought has been reiterated in the National cultural policy and adopted by the Cabinet and Parliament of Zimbabwe in 1996 that “Zimbabwe’s indigenous languages constitute a rich linguistic and cultural heritage for all Zimbabweans and should provide fertile ground for enhancing national understanding and national unity”.

Dutcher (2003) observed that most children who begin their education in mother tongue make a better start, demonstrate increased self –confidence and continue to perform better than those who start school in a foreign language. Mother tongue promotion in the school helps develop not only the mother tongue but also children’s abilities in the majority school language. The mother tongue is undoubtedly the language through which the child is inducted into this world and more so; it is through this language that the child will understand his/her environment and concepts far better. Several scholars among them Afolayan (1976), Bamgbose (1976), Adegbija (1994) and Mutasa (2004) emphasized that mother tongue education ensures learners’ performance at the maximal ability and psychological support. In his research Magwa (2008) concluded that the use of the mother promote better understanding between the home and the school. Moreover, the parents will be in a better position to understand the problems a child has at school and in some measure help the child in his or her education. Findings have shown that children benefit most emotionally and cognitively, if information in the early stages of primary education is delivered in the mother tongue.

2.5.1 The role of indigenous African languages in Zimbabwe

The debate on the role of indigenous African languages in Zimbabwe’s education system is not new. Scholars such as Ngara (1982); Chiwome and Thondhlana (1992); Chimhundu (1998) and Mutasa (2004) have contributed significantly in this regard. According to Mutasa (2004) language enables individuals to become fully functioning members of a group. Ngugi (1994) asserts that language is one of the indispensable features of the cultural systems of all societies. In other words language is the collective memory bank of a people’s experience in history. Language then, helps people to communicate their socio-economic, political, scientific and

technological experiences. Language is a production tool that facilitates thinking and sharing of ideas. Empowering people to use their indigenous African languages such as ChiShona as a language of instruction in the education system would enable the people to come up with home grown solutions as they participate fully in the development of the society.

In his research Makanda (2011) pointed out that efforts that have been put in place in the use of indigenous African languages in Zimbabwe are mainly by individual associations, universities and other language groups. These efforts have not gained a lot of support and seal from the government hence, the absence of the political will power to ensure that indigenous African languages occupy higher status positions in the development programmes of most African nation states. African governments have recognized foreign languages as official languages whilst the masses in the rural areas have stuck to the use of their indigenous African languages in all the major domains of their lives, even as the same masses borrow liberally from the foreign languages of conquest to further enrich indigenous African languages. This recognition contradicts the intention of government to involve its citizens in participating in matters of development. Mazrui (1996b:3) laments the use of foreign languages to propagate development in Africa, when he argues that “a country cannot prosper using other peoples’ languages without the dangers of subordinating its citizens”. He further questions whether “any country [can] approximate first rank economic development if it relies overwhelmingly on foreign languages for its discourse on development and transformation”. Will Africa ever effectively ‘take off’ when it is so tightly held hostage to the languages of the former imperial masters? The lamentation of Mazrui (1996b:3) was supported by Chimhundu (2005b:4) who noted that “language is at the heart of a people’s culture and it is imperative that cultural advancement of a people, economic and social development will not register significant gains without the use of indigenous African languages. Therefore, it is imperative for institutions of higher learning in Africa and in general, and Zimbabwe in particular, to craft their courses to suit the use of indigenous African languages without compromising the level of the high standard the Zimbabwean language is renowned for”. Hence this study seeks to investigate the use of ChiShona as a language of instruction in the teaching of mathematics in primary schools.

Chessa (2001:16) observes that cognitive and affective development occur more effectively in a language that the learner knows very well. The author further argues that learning in general occurs more effectively if the required cognitive development has already taken place through the use of a first language as a language of learning. Similarly, Bamgbose (1991:50) points out that language is a powerful symbol of society, particularly if its potential is fully recognized and exploited. It can be a key contributing force towards nationhood and national development if properly managed. ChiShona can be used as a vehicle of national development if put into proper use. Hence this research seeks to investigate the feasibility and probability of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools.

Chiwome and Thondhlana cited in (Mutasa 2003) investigated the teaching and learning of ChiShona through the medium of ChiShona and English at High School and University levels. Their premise was that using English as the language of learning and teaching puts non-English speaking students at a disadvantage. They established that although the subjects have an indigenous African language at heart they preferred to be taught in English especially at University. The use of both English and ChiShona in one lesson, that is code switching, would definitely undermine the image of ChiShona as an African language. Their research did not specifically look into the issue as to whether ChiShona can be used in the teaching of subjects such as Mathematics, Science and other technical subjects.

In their research Gudhlanga and Makaudze (2005) argue that the marginalisation and down grading of African Languages are as a result of colonial language policies. They argued that during the colonial period students were forced to use English in the teaching and learning situation of ChiShona and IsiNdebele. Those caught speaking an indigenous African languages were severely punished and in such cases Africans had no choice but to learn the language of the colonial master. ChiShona was introduced as a subject at 'O' level in 1957 and IsiNdebele in 1967 for African schools. In former Group A schools ChiShona was introduced in 1964 and Zulu instead of IsiNdebele in 1979. Unqualified personnel taught the indigenous African languages when they were introduced in schools (Chiwome, 1996). To make matters even worse the time slots allocated for instruction of indigenous African languages was unfavourable. ChiShona and IsiNdebele were usually allocated time in the afternoon when it was quite hot and learners were

tired, (Bamgbose,1991). The prime teaching period in the morning was usually allocated to the teaching of Mathematics and English that were considered important. Also parents and teachers wanted their children to pass English and this led to social stratification that undermined the unity of the indigenous people. Mutasa (2003:304) supports the notion that parents perceive English as the answer to their children's academic and social problems in that, English is unquestionably the gateway to success socially, politically and economically. Chimhundu (1993: 58) observed that in the post colonial era we have in Zimbabwe an unbalanced bicultural and bilingual situation in which the H or high status language is the official language of the former colonial power, while the indigenous African languages are of L or Low status languages. This means that African languages such as ChiShona and IsiNdebele are looked down upon as less important socially and culturally in Zimbabwean secondary schools. It is of interest in this research to investigate the Language planning in Zimbabwe with reference to the use of indigenous African languages in the teaching and learning of subjects in the Zimbabwe education system.

While language is a tool of communication which expresses ideas, and empowers people, education has also been identified as a tool for equipping people with knowledge, skills and values (Kamwendo, 2009:1); hence education offered in indigenous African languages is likely to incorporate indigenous values to the values of sustainable development. Prah (2001b) in Brock-Utne and Hopson (2005:25) postulates that the language of education is the language of hegemony and power. He asserts that knowledge is accumulated and deposited in the language of instruction and where language of instruction is the same as mother tongue it gives confidence to a people with respect to their historical and cultural baggage. Where a people lack confidence and respect of their cultural heritage there is bound to be frustration, alienation, cultural dominance and under-development. Mateene (1980) maintains that African languages are underdeveloped in scientific and technical expression because they have not been used to express thought in these fields. Indigenous African languages are poor because Africans do not want to use them in important areas such as education, administration, medicine and the law. Related to this, the Harare Declaration declared that scientific and technological discourse should be conducted in the national languages as part of Africa's cognitive preparation for the challenges

of the 21st century (Chimhundu, 1997). However, a decade into the 21st century, Africa still clings to ex-colonial languages as the languages of scientific and technological discourse.

Be that as it may, scholars like Rubanza insisted that African development is impossible without the use of African languages, (Prah, 2002:44). Rubanza maintains that ethnic languages enable those who interact to make relevant connections with their lives beyond the school. Rubanza (1996) argues that for some; English = Education, English = School uniform because you take it off when you go home. In the view of this study, a language for example, ChiShona, that helps the learner grasp new knowledge, apply it to real life situation beyond the classroom and share the new knowledge with immediate community, is more empowering. The language encourages development and transfer of knowledge in a way that does not leave learners alienated from their immediate environment while it contributes to development of the community ultimately leading to global development. Education for sustainable development uses education as a conduit for promoting environmental consciousness and responsibility so it should not be taken off when school is over. Education offered in the language of the majority is likely to be sustainable. Pertinent to the use of language in education is not only the population of speakers but whether the language is also available in print media for resource materials. Bamgbose (1991:72) claims that, 'No matter how large the population of speakers of a language is, it is only when the language has been reduced to writing and materials made available in it that it can be used in education.'

According to Mavesera (2010) declarations have been made to use indigenous African languages as media of instruction but with no clear implementation strategy. A challenge that remains is that the declarations are not supported by resource funding even of teaching materials. Furthermore while policy might encourage indigenous African languages as media of instruction, examinations in all subjects other than ChiShona and IsiNdebele are still done in English so any reasonable teacher would teach for examination purposes since the schools are ultimately rated according to examination performance at the end of the year. Furthermore Mavesera (2010) points out that had the English not valued their language; Latin would still be the "world" language. By the same token if Africans do not value their languages, English and other non-African languages will remain "the world languages". The successes scored by Tanzania in the

swahilisation process are a result of heavy financial and human resource investment to meet the different linguistic needs of the state and society. It is vital to invest in both human and financial resources if positive results are to be realised in language planning. It is only when indigenous African languages have become languages of instruction that they can occupy a significant place for sustainable development in the global village.

2.5.2 Use of mother tongue instruction in Zimbabwe primary schools.

In his research, *planning for the Future: Exploring Possibilities of Using Indigenous African Languages as Official Languages of Instruction in Education*, Magwa (2009) concluded that Learning in general occurs more effectively if the required cognitive development is taking place through the use of a first language as a language of learning. He further concluded that a language of instruction, which is the home language or mother tongue, is an instrument for cultural and scientific empowerment of people. It is the view of this research to examine the feasibility of using ChiShona, a mother tongue, as a medium of instruction in the teaching of Mathematics in primary schools.

Mother tongue instruction refers to the use of learners' mother tongue (ChiShona) as a medium of instruction. UNESCO (2003:15) describes the term mother tongue as "the language that one has learnt first, the language one identifies with or is identified as a native speaker by others, the language one knows best and the language one uses most". The medium of instruction therefore refers to the general manner in which an instructional offering is provided so that effective learning can take place. Studies have shown that instruction in the mother tongue is beneficial to language competence in the first language, achievement in other subject areas and training in second language (UNESCO, 2003).

Mother-tongue instruction is effective when there is appropriate terminology for education purposes and sufficient resource materials, when there are appropriately trained teachers available and when learners, educators and parents are willing. Bamgbose (1991), Benson (2004) cited in Brock-Utne and Hopson (2005) and Webb (2002) agree that education through mother-tongue instruction opens doors for mass participation. Furthermore Bamgbose (2000: 58-59)

mentions that UNESCO experts who met in Paris in 1951 to consider language as a medium of instruction concluded that:

“Pupils should begin their schooling through the medium of the mother tongue, because they understand it best and because to begin their school life in the mother tongue will make the break between home and school as small as possible”.

In other words the UNESCO Committee of 1953 recommended that the best medium for teaching a child is the mother tongue through which children understand better and express themselves freely. Through the use of mother tongue instruction, the learners can express themselves; teachers can diagnose what has been learned, what remains to be taught and which learners need further assistance. Mother tongue instruction allows children to be themselves and develop their personalities as well as their intellects. In addition UNESCO (1953:1) states that it is axiomatic that the best medium of teaching a child is her mother tongue. Psychologically, it is the system of meaningful signs that in her mind works automatically for expression and understanding. Sociologically it is a means of identification among the members of the community to which she belongs. Educationally she learns quicker through an indigenous than an unfamiliar linguistic medium.

The medium of instruction is viewed to have a strong bearing on how the learner will adjust to primary school life as it either provides a smooth handover-takeover from the home to the school system or a rough grab that might result in frustrating the learner. In free societies, knowledge transfer takes place in the language or languages of the masses, the languages in which the masses are most creative and innovative, the languages, which speak to them primordially in their hearts and minds (Prah, 2005:26).

The use of mother tongue as a medium of instruction ensures that learners are taught in a language spoken by a large number of people, which language is useful in local and national life and the language is familiar to both learners and teachers, for example, ChiShona would be the most appropriate language to be used as a language of instruction. Children all over the world learn better if taught in their mother languages (Prah, 1993; and Chessa, 2001). Subjects such as Mathematics, Physics, Chemistry, Biology and Geography to mention a few are very difficult

mainly due to the failure by learners to understand concepts because they are explained in English, which is a foreign language to most African school children. The language of learning should facilitate easy acquisition of knowledge and skills that can be practically applied to the learners' immediate environment.

According to Fishman (1971a:15) in the Philippines, an experiment famously known as 'Iloilo' was carried out to examine the relative effectiveness of using a local language called Hiligaynon to replace English as medium of instruction. Findings from the study showed that the experimental groups taught in the mother tongue performed better than the control group which was taught using English as a medium of instruction. Out of many research findings, Bamgbose (1991) cites the Six Year Primary Project started in 1970 in Nigeria to establish the effectiveness of the first language as compared with English L2. Results of the experiment clearly showed that the indigenous languages facilitated more meaningful learning than English. From the Six Year Project it can be noted that where a language is dominant, mother tongue education involving the use of an indigenous language as medium of instruction for the entire primary education can be achieved without compromising proficiency in English, which can be taught as a subject at all levels of education.

Cleghorn (1992) carried out comparative studies on the effectiveness of the first language, L1 over English, L2 in several schools in Kenya and also found that important ideas were more easily conveyed when the teachers did not stick to the requirements of English as the only language of instruction. Chaudron (1988) asserts that in a learning situation where only English as a second language is used as a medium of instruction, learners face problems because their task is threefold. The first is that the learner has to make sense of the instructional tasks which are presented in the second language. Secondly the learner has to attain linguistic competence which is required for effective learning to take place. Finally the learner is faced with the problem of mastering the content itself. Learners who learn through a second language are disadvantaged (Wallwork, 1985; Ngara, 1982; Macnamara, 1973; Miti, 1995).

In the teaching of Science in Zimbabwe, Mammino (1998:189) made the following observation” science students experience difficulties with the language of science (English). Students using a second foreign language as a medium of instruction experience the additional difficulties related to such use.” Mammino elaborates that “an inadequate mastering of the second language affects all the aspects of a student’s work, from reading/learning stage to the stage when they are asked to prove their knowledge (Mammino, 1998: 196)

Batibo (2005:36) maintains that indigenous African languages should not be seen as stumbling blocks to national unity, national identity and national development but should be regarded as resources for people’s aspirations and full participation in national development. In view of this the language of education should be that which offers potential for full participation by the masses. However the question that remains is: “Are African languages in a position to be effectively and efficiently used as media of instruction in education?”

A strong positive justification in the use of the mother tongue in the early years of primary education is that by the time a child enrolls in a primary school at the age of six he/she would have developed a capacity to use one language or the other, in most cases his home language/mother tongue, or the language of the immediate community. Learning through such a language will provide a smooth transition from the world of the home to the world of the school. Initial literacy should therefore be conducted in a language that the child already knows and depending on other factors such as state of development of the language, size of speakers and teacher availability, this language should continue to be used as a medium of instruction for as long as possible in primary education.

Ngidi (2007:3) observed the following advantages and disadvantages of using ChiShona as a medium of instruction in Zimbabwean primary schools. The Advantages of using ChiShona are:

- Some topics in primary school subjects are mostly discussed in ChiShona, for example topics that deal with cultural studies.
- Using ChiShona encourages assimilation of English terms into ChiShona. This is one way ChiShona can be developed into a language of instruction which could also be used for mathematical instruction.

- Examples can easily be given in context
- Rote learning can be avoided because of the students' better understanding of the material.
- Learners become more creative since they have to improvise and find novel ways of expression; invent terms to use in their written work.

The disadvantages of using Chishona as a medium of instruction are:

- There is no standard academic register for ChiShona.
- There is no creativity as learners tend to prefer readymade material in English language

2.5.3 Attitudes of teachers on the use of mother-tongue as a medium of instruction in schools

The success of a mother tongue instruction policy depends on people's attitudes towards the first language (ChiShona) and the second language (English). The colonial and the post colonial language and educational policies obviously provide a solid basis of the explanation of attitudes towards African languages, for example, ChiShona, L1 and English, L2 (Ngugi wa Thiongo, 1986, Bamgbose, 1991 and Roy-Campbell, 1996).

In Zimbabwe the colonial language policies either adopted the use of English from the first grade or only used indigenous African languages as a medium of instruction in the lower classes of the primary school. Post colonial language policies have maintained the status quo thus perpetuating the existence of an elite group of people. The fact that indigenous African languages are not being used for education beyond the lower grades has greatly contributed towards African indigenous languages such as ChiShona, being regarded as less important. Hence such indigenous African languages are characterised by oral usage, individual/community usage, emotional attachment, village solidarity and personal loyalties.

It is generally assumed that English is inherently superior and better suited for education. Conversely African languages such as ChiShona are considered inferior and less suited for education. To the Zimbabwean student the advantage of using English as the language of teaching and learning outweighs the merits of employing African languages such as ChiShona in teaching and learning. ChiShona lacks appropriate terms to be used in technology and that it is difficult to translate certain English terms to ChiShona in some subjects like Mathematics and Science. Some of these terms may be spelt differently thus confusing the students, for example, words like ‘theory’ would be difficult to spell or even translate them into ChiShona. The reason for this is that the current ChiShona orthography lacks some sounds which will make it possible to write some technical terms in ChiShona (Dube 2000:87). ChiShona is underdeveloped and this hinders its use in such areas as teaching and learning in secondary schools. As Kamwendo (1999:229) puts it, “English is synonymous with sound education whilst education through African languages is given second class rating” (Kamwendo in Mutasa (2004:120). He further stated that “It is generally assumed that English is inherently superior and better suited for education. “Conversely, African languages are considered inferior and less suited for education”, (Mutasa, *ibid*).

2.5.4 Learner attitudes

In colonial Africa, Westermann (1949) in Ngara (1982) was among the first people to note that there was danger in using a European language (English) as a medium of instruction for African Children, who even at primary school level, did not attach any importance to the mother tongue (ChiShona), which they were prepared to get rid of as quickly as possible.

In Zimbabwe, Ngara (1982) acknowledges that University of Rhodesia students in the 1960s used to regard English Honours degree as prestigious, whereas a degree in ChiShona had a low reputation and the Africans had a negative attitude towards their own language. This is the root cause of the current learners’ negative attitudes towards the use ChiShona as a medium of instruction in the teaching of primary school subjects such as Mathematics. Rwambiwa’s (1993) findings confirmed that pupils often humiliated teachers of ChiShona and other African languages by expressing negative attitudes towards learning indigenous African languages.

Rwambiwa (1996) argues that such attitudes, expressed by learners towards the mother tongue, are encouraged by the language policy of 1987 which requires learners to learn all subjects, including Mathematics in English beginning in Grade 4.

Learner attitudes can also be explained in terms of influence from teachers (Setati 2005). When teachers undermine the children's L1 and use English as the medium of instruction from the first grade, this may result in children having a negative attitude towards their mother tongue (ChiShona) being used as a medium of instruction in teaching Mathematics at primary school level. According to Murray and Smith (1988) this attitude comes about possibly because when their mother tongue is not used for educational purposes, children may not attach any importance to it.

Ndamba (2008) in her study found that children liked to speak in the mother tongue more than English during lessons. This may be due to the fact that these children, who all indicated that they speak ChiShona/IsiNdebele at home, may find it free and natural to express themselves in their mother tongue during lessons (Ngara, 1982).

The learners' attitudes on their preference to use English as a medium of instruction was based on the views, that most text books, literature and reading materials are mainly available in the English language, that English is easy to understand and to communicate in and that it is the "official" language in Zimbabwe. The universality of English in both the material subjects and Geographical boundaries has given the English language an advantage over other languages. English is also well developed and covers a broad spectrum of terms in the science and medical field much that it takes less time to impart the knowledge to students as opposed to other languages.

2.5.5 Community and Parental attitudes towards mother tongue instruction

People in post –colonial countries still identify education with former colonial languages as in new South Africa and Namibia as pointed out by Roy-Campbell (1996) and Setatic (2005) who

observed that Africans still resist mother tongue education in favour of English. They argue that Africans view English as a language of knowledge. Nondo (1996) argues that negative attitudes by parents towards the African languages are passed on to children. Parents of Children at Wankie Secondary School regarded IsiNdebele as being of no value to their children's lives since it did not render a person employable.

Research by Ndamba (2008) shows that children in Grades 1-3 preferred to read and write in English. This could be a result of children who are told by parents that they go to school to learn English (Otto 1997). Attitudes that English is more important than ChiShona may be passed on to children by parents who tell children that English provides educational and employment opportunities in the future (Nondo, 1990). Thus children may begin to develop negative attitudes towards the first language which they might then regard as less important (Bamgbose 1991, Robson 1996). According to Ndamba (2008) there is no consistency between the language policy and parents' perception of the role of the mother tongue learning since parents clearly indicated that they preferred English to ChiShona/ IsiNdebele as the language of instruction for their children in primary schools. English is positively evaluated possibly due to its functions in the future of their children. This implies that parents of ChiShona children have become used to English as a language which provides their children with a more profitable future in the world of employment. English is seen as performing high functions than ChiShona which does not render a person employment; hence parents tend to negatively evaluate indigenous languages because they do not perform such high functions (Robson 1996, Otto, 1997).

Explanation for positive evaluation of English by parents is that because of the colonial policy parents got used to undermining indigenous languages since it was not at all used as language of instruction from the first grade. Rwambiwa (1996), Gatawa (1998) and Gudhlanga (2005) attribute the negative attitudes towards the indigenous languages to the fact that the current language policy which requires children to learn in the mother tongue only in the lower grades.

Ndamba's (2008:184) findings suggest that parents and children had a more positive attitude towards English than the mother tongue as the language of instruction at the infant level. This

implies that people have been so linguistically colonised that they have more faith in English than they do in ChiShona's process of children's learning.

2.6 EMPOWERMENT OF AFRICAN LANGUAGES THROUGH THEIR USE IN THE TEACHING AND LEARNING SITUATION

The use of African languages, for example, ChiShona, in the teaching of other subjects in primary schools is a powerful strategy for empowerment of African Languages. This will enable them to use in other professions such as medicines, nursing, counselling and engineering. Employment of indigenous African languages in education ensures rejuvenation and revitalisation of indigenous African Languages and enhances their image when people realise that concepts and subjects formally reserved for English can be taught in indigenous African Languages too (Mutasa, 2003).

The use of indigenous African languages in education is cost effective in that it minimises failure rates. The concepts are understood readily as learners do not grapple with the language of learning but concepts only. According to Mavesera (2009) the use of African languages ensures active participation by local communities in national development projects. The people can comprehend and contribute to the development initiatives with the ultimate result of an increased ownership of the projects. The use of indigenous African languages provides confidence to Zimbabwean people so that they can share ideas and express their potentials to participate in community, national and global economies.

As a communication tool indigenous African languages such as ChiShona, enhance the speaker's confidence, a virtue necessary for interaction within the class. Confidence ensures self-esteem that is, a necessary ingredient for one to effectively interact with one's learning environment to foster the understanding of the subjects/concepts being taught. A language of significant importance should be used in educational instruction, communicate business ideas to the wider world and it should be accessible on the information highway. At the present moment indigenous African languages such as ChiShona, are far from being languages of mainstream educational instruction (Mavesera, 2009). Although learners may be interacting in the school environment

and even discussing concept in other subjects in indigenous African languages when it comes to writing of examinations, English is the language for answering the questions in the examination. Use of indigenous African languages as media of instruction in education shows recognition of linguistic and cultural plurality. If the major mother tongue is used as a medium with minority languages taught as subjects, this will create cultural harmony and co-existence. Use of languages of wider communication as media helps to promote international understanding and solidarity.

Mavesera (2009:48) argues that a language that a child knows effectively should be the language of education and training. The language used for education purposes should be a language capable of opening communication barriers. The communication barrier indicates the importance of language in the comprehension of concepts in the learning process. If a word can be an obstacle to learning, it is assumed that a language would cause a serious deterrent to learning. Benson (2004) and Webb (2002) concur that the use of indigenous African languages as languages of learning/teaching makes parent involvement in learner's formal education possible, the cultural and emotional transfer from home to school and back less traumatic (Webb, 2002:191).

According to Brock-Utne and Hopson (2005:27) the knowledge that is accumulated and deposited in the language of instruction, where language of instruction is the same as mother tongue gives confidence to a people with respect to their historical and cultural baggage. Where a people lack confidence and respect of their cultural heritage there is bound to be frustration, alienation cultural dominance and under- development. Linked to this argument, Mutasa (2004:38) educates and advises that "...to guarantee success, knowledge and skill must be disseminated in languages easiest for millions to understand". Mackey (1984:38-49) argues that education in any language often contains the study of the people traditionally identified with the language. Mother tongue instruction should be promoted to enhance concept formation and include a majority of the indigenous learners who grapple with English. The use of mother tongue as a medium of instruction ensures that learners are taught in a language spoken by a large number of people, which language is useful in local and national life and the language is familiar to both learners and teachers. Concepts and terminology in science need to be

constructed within indigenous African languages and should engage the reality in which the majority of the population lives. Knowledge for the masses must be knowledge which speaks to the masses in an idiom they know well, that is an idiom which is native to them (Magwa, 2008). According to Durkheim cited, by Trudgil (1986: 19) the system of concepts with which we think in everyday life is that expressed by the vocabulary of our mother tongue because every word translates a concept. Hence there is need to teach mathematics in ChiShona at primary level and practical investigations towards its use as a medium of instruction are necessary.

Ngara (1982:23) points out that for many Africans to be educated was equivalent to acquisition of a European language and that many Zimbabweans still hold the belief that to be educated is to acquire knowledge through the medium of English. Some researchers argue that the choice of language of instruction is influenced not by pedagogical factors but other factors like perceived status of the language (Mavesera, 2009). English is perceived to be more powerful and to provide access to information and technology than indigenous African languages. Adams and Mayes (1998) remark that we should not happily and proudly put our children through education processes, which render them illiterate and even “unmoral” in our African languages. Prah (1995: a) and Skutnabb-Kangas (2000) argue that development in Africa will not be forthcoming until Africans start using African languages as languages of instruction from beginning to end of the education process. It is therefore necessary to take a leaf from the views of these authorities and examine the use of ChiShona as language of instruction in the teaching of Mathematics in primary schools.

Bamgbose (1991:72) claims that,” No matter how large the population of speakers of a language is, it is only when the language has been reduced to writing and materials made available in it that it can be used in education”. It is important to use ChiShona as a medium of instruction in the teaching of Mathematics when the language has been reduced to writing and is also available in print media for resource materials. This involves a lot of language planning.

Many researchers have researched on the language planning of indigenous African languages and their empowerment as languages of instruction and official languages. In her research on the empowerment through language Mavesera (2009) sought to explore possibilities of using

African languages and their literature to enhance socio-cultural and economic development in Zimbabwe. The study considered empowerment through language and an exploration of the different linguistic patterns and attitudes that prevail in the African continent in general and Zimbabwe in particular. In this study Mavesera (2009) indicated a disparity in the roles and functions allocated to languages in Zimbabwe. English is preferred and overvalued in administration, education and wider communication as a carrier of modern knowledge in science and technology. Zimbabwe's dependence on English provides selective access to socio-cultural and economic services that results in the exclusion of a majority of indigenous people. Zimbabwe's dependence on English therefore limits adequate exploitation of potential in socio-cultural and economic development. Mavesera's research did not focus specifically on how the African Languages can be used as a medium of instruction in the teaching of science subjects such as Mathematics; hence this study practically would like to investigate the feasibilities and possibilities of using ChiShona as medium of instruction in the teaching of mathematics in primary schools

The linguistic landscape of Zimbabwe is not adequately exploited. Zimbabwe is a multi-lingual and multi-cultural country without a clear defining instrument for the status and use of indigenous languages, (Gatawa, 1998; NLPAP, 1998 and Nziramasanga et al, 1999). Implementation of proposals for inclusion of indigenous African languages is retarded by centuries of linguistic marginalisation and fossilised attitudes in the belief that English carries modern knowledge, coupled with the lack of resources theory. Magwa (2008) sought to explore possibilities of using indigenous African languages of Zimbabwe e.g. ChiShona, as official media of instruction in the education system. The research aimed to find out the extent to which indigenous African languages could be used as languages of instruction in primary, secondary and tertiary levels of the education system. It also examined the attitudes of Zimbabweans towards the use of the mother tongue as medium of instruction in schools. In this research Magwa (2008) concluded that English continues to be the prestige-laden language enjoying high status while indigenous languages such as ChiShona, enjoy relatively low status. The study findings clearly showed that the majority of the participants prefer English to be the medium of instruction in both secondary and tertiary education because it is a language that gives power and

prestige. Magwa (2008) also concluded that Zimbabwe can never regain its dignity and cultural identity unless the education system is African oriented. The continued use of English as medium of instruction means that no scientific ideas can be formulated using indigenous African languages in the present schooling system leading to perpetual scientific bankruptcy. The primacy of indigenous African languages in the education process is of prime importance. If Zimbabweans would want to make strides in both educational and economic development, children should actively participate using indigenous African languages in the development of science and technology. It is in these indigenous African languages that knowledge for the upliftment of the masses of the Zimbabwean society can be transmitted. A language of instruction, which is the home language or mother tongue, is an instrument for the cultural and scientific empowerment of people. Cultural freedom and African emancipation therefore cannot be cultivated expanded or developed where the language of instruction is different from the home language or the language people normally speak in their everyday lives. It is against this background that this study seeks to empower ChiShona by investigating its practical use in the teaching of mathematics in primary schools of Zimbabwe.

The discussion on the use of indigenous languages in Zimbabwe's education system is not new. Scholars such as Ngara (1982); Chiwome and Thondhlana (1992); Chimhundu (1998) and Mutasa (2004) have contributed significantly in this regard. Ngara (1982) made the most significant contribution to language policy and planning in Zimbabwe. His study is an invaluable reference work for teachers and students that specialize in African languages. Ngara is of the opinion that in a developing country like Zimbabwe, English or any other imported language of wider communication and the local languages should always complement each other. Ngara (1982:128) recommended that 'the medium of education at the primary school level be the child's mother, in so far as mother tongue here is understood to mean any of the three official languages of the nation...at secondary and higher levels English be the language of instruction'. This study challenges the above recommendation by strongly arguing for the use of ChiShona as a medium of instruction in the teaching of mathematics in primary schools of Zimbabwe. Another weakness in Ngara's research to be corrected by this study was his inability to investigate practically and implement the use of ChiShona as medium of instruction.

Chiwome and Thondhlana (1992) support Ngara (1982) in that the coming of independence to Zimbabwe gave rise to a general cultural awareness and change of policy in language and education. Zimbabwe like most African countries is now putting more emphasis on African languages than was the case under colonialism though unfortunately it does not have a clear language policy, hence the need to carry out this study.

The development of African languages in Zimbabwe has been advocated by many scholars and politicians, with the intention of promoting and developing a Zimbabwean culture that emphasises national unity. The language policy adopted at independence which is enshrined in the 1987 Education Act enhanced the status of local languages while recognizing the importance of English as the language of business administration and international relations. English thus remained the official language, medium of instruction in schools, a compulsory subject and also a requirement in all school certificates. Institutions of Higher learning, including the University of Zimbabwe have tried to address this imbalance in the use of indigenous African Languages such as ChiShona.

According to Magwa (2008:156) the Department of African Languages and Literature at the University of Zimbabwe came up with specific initiatives on how indigenous African languages may be used generally and more specifically in the education and training systems in Zimbabwe. The African Languages Lexical Project (ALLEX) was launched at the University of Zimbabwe on 21 September 1992 with the aim of laying down a foundation of the production of monolingual dictionaries in ChiShona, Ndebele and other minority indigenous African languages of Zimbabwe. The ALLEX Project, according to Chimhundu (1992) is a long-term lexical computing project that aims at successive production of works of reference, mainly in the form of three monolingual ChiShona dictionaries at three different levels of completeness and complexity. The first dictionary is for the secondary school, the second for the primary school and the third for the colleges and universities of Higher Education. The aim of producing the dictionaries was to create a language bank, a powerful instrument which would serve other works in lexicology, linguistics, translation studies and journalism. These dictionaries would be

used as resource materials in the use of indigenous African Languages as media of instruction in the teaching of science subjects in schools. However the aim of ALLEX Project was not to investigate the feasibility of using indigenous African languages as languages of instruction for science subjects and this gives room for this research to investigate the use ChiShona in the teaching of mathematics as medium of instruction.

Apart from ALLEX, the African Languages Research Institute (ALRI) is also a research organisation which is based at the University of Zimbabwe and run by the Department of African Languages and Literature. This is an interdisciplinary non-faculty unit specifically for research and upholding indigenous African languages in Zimbabwe. According to Chimhundu (2005), the Institute has a broad mandate to research, document and develop the indigenous African languages of Zimbabwe in order to promote and expand their use in all spheres of life.

According to Gudhlanga and Makaudze (2005:1) Great Zimbabwe State University has promoted the use of indigenous African languages as media of instruction. The Department of African Languages and Literature has also made a bold statement to the effect that all courses offered by the Department, such as Phonology, Phonetics, Morphology, Literature and Syntax are being taught in the local medium. Despite the scarcity in resources and earlier setbacks in the local language medium, instruction in the mother tongue seems to be bearing the relevant fruits. When writing assignments for example, students are being encouraged to use English texts as references but have to translate all ideas into the relevant local language. This move to empower the use of indigenous African Languages is in good direction as it lays the foundation to this research on the use of ChiShona as a medium of instruction in the teaching of mathematics in primary schools.

According to Nyota (2009) the Education Act of 1987 gave English official status while ChiShona and Ndebele were accorded national status. According to this Education Act, ChiShona (and IsiNdebele) can only be used as a medium of instruction from Grade one to three. Thereafter English takes over. From the present researcher's experiences as educators very few schools follow the rules set out in the Act since they use English as the medium of instruction

from Grade one for all subjects except for the ChiShona language. The researcher notes that the reason for the impediment to the implementation of the Act is a combination of factors. Some of them are such as negative attitudes by the ChiShona speakers towards their language in its diglossic relationship with English as the H(igh) in Zimbabwe(Chivhanga, 2008). There is also the lack of supervision and monitoring to find out if the rules and government policies are being implemented. If only ChiShona was used as the medium of instruction in Zimbabwe, maybe Shona youngsters would have positive attitudes towards their language as a medium of instruction in primary. For now, the ChiShona learners use English as the medium of instruction and one subject that they perform badly in is Mathematics. Certainly language is one of the variables leading to the high failure rate. One proof to in this pathetic learning situation is that Mathematics teachers have been observed to code-switch a lot from English to ChiShona as they attend to their classes (Nyota, 2009). Obviously if the mathematical concepts are taught in a language that most of the students would understand, the dropout rate would have been low. Hence this study seeks to investigate the feasibility of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools.

In her recommendations, Mavesera (2009:174) pointed that indigenous African languages be developed to become media of educational instruction, as this will include more people who currently suffer from linguistic deprivation induced by the use of English. She argued that there is need to develop relevant literature to be used in subjects like Mathematics, Science and Technology. The recommended way of introducing it is to begin with lower levels of education until it cascades to university level. Using indigenous African languages as languages of instruction as well as literature in indigenous African languages increases the chances for inclusion of many people who struggle to be literate in English. This recommendation paves the way for this research to investigate the use of Chishona as a language of instruction in the teaching of Mathematics in primary schools.

2.7 THE TEACHING OF MATHEMATICS IN PRIMARY SCHOOLS

Mathematics is a science related to measurements, calculations, discovering relationship and dealing with problems. It involves critical thinking, researching and problem solving of space. It has a particular language in which symbols occupy a most important position (Sudhir and

Ratnalikar 2003:4). Everybody irrespective of class makes use of mathematical knowledge in one way or another. Failure to use appropriate teaching methods and learning aids on learners may lead to rote learning. Mathematics like any subject on the curriculum in Zimbabwean Schools is being taught in English (from fourth grade up to University) the medium of instruction in Zimbabwe as is set out in the Education Act of 1987 which was reviewed in 1997. Mathematics is being taught in English, which is a second language to most Zimbabweans. This means that the learners struggle with both language and Mathematics concepts. According to Natsa (2006:76) the dominance of English has been a matter of concern. The use of English as a language of instruction in the teaching of subjects such as Mathematics adversely affected the ability of learners to understand and communicate the subject (Government of Zimbabwe, 1999). It was for this among other reasons, that the government appointed a Commission on Education of 1999 which proposed steps that should be taken to develop ChiShona and other indigenous languages to the point where they would replace English as the language of instruction in schools. In teaching of subjects where indigenous African languages may be used as languages of instruction it is likely to capture the essence of the learners' thinking and belief systems (Natsa, 2006).

In the teaching of Mathematics Nyota and Chikodzi (2010) found out that teachers in the rural areas use teaching aids like sticks and stones to explain the concepts of counting yet there are a whole range of cultural aspects that rural learners use everyday which can be used to illustrate mathematical concepts. Even though English is the main medium of instruction, teachers in the rural areas use ChiShona to explain mathematical concepts and activities whenever possible and such explanations are more extensive during the introduction of new learning concepts (Nyota and Chikodzi, 2010). This study proposes to find out the feasibility of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools.

The culture has an effect on how a group of people will live and learn. This means that the culture of the Shona has an influence on how the children learn and retain what they are taught in Mathematics at school. One can say this culture can be able to shape even their habits in learning mathematics. This mathematical pedagogy is referred to as 'ethno mathematics'. The term ethno

mathematics was coined by D'Ambrosio, a Brazilian mathematician in the 1980s, who defined it generally as the way different cultural groups count, measure and relate to mathematical concepts (Nyota and Chikodzi, 2010).

'Ethno mathematics' encourage teachers to know and learn the practices of their learners' families and communities and integrate these into their teachings. This includes the use of ChiShona as a language of instruction in the teaching of subjects such as Science and Mathematics in the primary schools. For example in playing games like 'pada', 'arauru', nhodo and 'zai rakaora' the teacher may involve the learners to name the shapes they would have drawn on the ground as they play their games using ChiShona as their language of instruction. Besides games there are other items that are made or practised in Shona culture which can also help in the teaching of Mathematics. The teaching of counting, addition and subtraction, numbers and volume can be fused with the Shona cultural aspects. Using Chishona language the children can explain and know the quantities that make good sound and the number of seeds to put in a 'hosho' to be used in their musical games (Nyota and Chikodzi, 2010). Pot making using clay helps children practice concepts such as shapes, size and numbers. There are different sizes and shapes of pots and these have been given ChiShona names. Such names can also be used in the teaching of Mathematics using ChiShona as a medium of instruction, e.g. 'denderedzwa' meaning a 'circle'. The building of round huts can be used during the teaching of drawing circles which may lead to the use of compasses. The teaching of circumference and area of a circle is also made easier.

Historically and culturally women were the first mathematicians ever, declared Mtetwa (1991). The cyclical nature of menstruation has helped a major role in the development of counting and the measuring of time. The Shona women were among the first observers of the basic periodicity of nature (Mtetwa 1991). They used to tie knots on a string to mark their number of months for their pregnancy. Culturally women introduced us to the world of counting and undoubtedly the first mathematicians.

A research on the relationship between maths and ethno mathematics, by Mtetwa (1991) concluded that mathematics can be done in other languages including ChiShona, apart from English. Mathematics is universal it can be taught in different languages but saying the same things. Mtetwa (1991) went on to conclude that although doing or learning mathematics could be done in ChiShona, it would be exceedingly difficult to do so in ChiShona because ChiShona does not have a lexicon for Mathematics. When students feel that the Mathematics in the class does not relate to them, or their culture, they may feel unconnected or even invisible.

2.8 CONCLUSION

Whilst the African continent has been politically liberated, there is still need to continue the fight against over-dependency on ex-colonial languages in administration, government, commerce and education. Doke's contribution in the development of ChiShona orthography in Zimbabwe is appreciated because it paved the development of African languages in a way that promotes socio-economic and cultural transformation. This chapter focused on the exploration of language planning in Zimbabwe and selected African Countries. Language planning in Zimbabwe was traced from the colonial period to the present day.

Zimbabwe's language policy is not backed by a clear cut legislative provision on what language is the official language. It is through common usage and a hotchpotch of Acts that declare that the English language as the official language. Hence the language situation in Zimbabwe is still characterized by the dominance of English as the language of power and prestige. Knowledge of English is usually associated with high socio-economic status and the language is usually regarded as the key to success and a prerequisite for upward mobility. The introduction of indigenous African languages as media of instruction in primary schools of Zimbabwe may help change the status of indigenous languages but the lack of a clear language policy might make it difficult to bring about sustainable language development programs.

The next chapter presents the theoretical framework upon which the research is grounded. In the same chapter the research design and research methods adopted for this research are discussed meticulously.

CHAPTER 3

THEORETICAL FRAMEWORK, RESEARCH DESIGN AND METHODOLOGY

“The method consists of an attempt to build a bridge between the world of sense and the world of science” (Bertrand Russell, 1872-1970)

3.1 INTRODUCTION

To examine the feasibility of using ChiShona as medium of instruction in the teaching of Mathematics to primary schools, a multidimensional methodology using mainly qualitative methods supported by quantitative ones will be used. The chapter focuses on the theoretical framework which gives the foundation to the methodology of this study. This theoretical framework provides the basis on which this study is grounded in order to guide analysis and interpretation of the findings of this research. The discussion in this chapter provides the research design, population sample, research instruments and data collection procedures for the study. The research data is collected through practical teaching of a Grade 4 class by the researcher as well as by interviewing various people which included teachers/lecturers, college/university students and parents.

The data in this study is also gathered through the use of questionnaires and analysis of curriculum documents. The interviews allow the researcher to probe deeper into some of the questions. The questionnaires and interviews with teachers/lecturers, parents and college/university students aim to find out the attitudes of Zimbabweans towards the use of indigenous languages as languages of instruction in education.

3.2 THEORATICAL FRAMEWORK.

This study involves language planning and policy issues. Language planning and policy is based on Haugen’s definition of language planning as “the activity of preparing a normative orthography, grammar, and dictionary for the guidance of writers and speakers in a non-homogenous speech community” (Haugen, 1989:29). Other scholars such as Christian (1988:197) as quoted by Roy Campbell (1999:20) define language planning as “an explicit and systematic effort to resolve (perceived) language problems and achieve related goals through

institutionally organised intervention in the use and usage of languages (or language varieties)". This definition suggests the need to adopt a systematic method of addressing language problems. It implies that certain standards could be followed and maintained during the process of resolving the perceived language problem. Mutasa (2004:24) presents language planning as a concept that identifies a language problem or problems, describes them and influences change with the aim of solving the language problem.

Bamgbose (1989:27) asserts that at present, there is nothing in existence that may be called a theory of language planning. What we have currently is a growing consensus on the elements that should go into a model of language planning. Models of language planning have been established and refined and language-planning activities in several countries have been analyzed and described (Rubin and Jernudd, 1971; Fishman, 1974a; Haugen, 1969; Bamgbose, 1989). It is therefore necessary to examine the theoretical underpinnings of language planning in Africa that guides research activities for this study.

Language planning in Zimbabwe could benefit immensely from these ideological orientations hence the research will be guided to a very large extent by these theoretical dispositions as the researcher try to articulate the many aspects of language planning and policy to be discussed in the different sections of this study.

3.3 LANGUAGE PLANNING.

Haugen (1959:673) defines language planning as the activity of preparing a normative orthography, grammar, dictionary for the guidance of writers and speakers in a non-homogenous speech community. In other words language planning is a concept that is used to define both the process and study of language activities. Weinstein (1983:37) also defines language planning as a "government – authorised, long term sustained conscious effort to alter a language itself or to change a language's function in a society for the purpose of solving communication problems". Government carries out language planning or bodies authorised by the government. It is concerned with solving communication problems of the society. This implies that it aims at finding solutions to language problems that are typical of the national level.

Crystal (1997:366) notes that the process of language planning “involves the creation and implementation of an official policy about how the languages and linguistic varieties of a country are to be used” and that activity of language planning include those that are political and judicial, at one extreme, and those that are unofficial and illegal, at the other. Crystal (1997) goes on to point out that it is crucial to disentangle historical, political, economic, religious, educational, judicial and social factors during the activities of language planning. He also notes the multifacetedness of attitudes towards planning proposals, some of which are complete support, partial approval, general indifference, mild antagonism and total antipathy.

In addition, Francis and Kamanda (2001:225) conceptualise language planning as “an attempt by some organised body (most commonly some level of government) to introduce systematic language change for some more or less clearly articulated purpose (commonly stated in altruistic terms, but often not based on altruistic intents)”. Though Crystal and Francis and Kamanda agree that language planning is a systematic process, Francis and Kamanda suspect that there is a level of hypocrisy on the part of policy planners in the sense that they posture as if they are pandering to the whims of those that the policy is purported to serve when in reality language planning is usually done for purposes of self-aggrandisement by the government of the day.

As Cooper (1989: 35) rightly notes, objectives for language planning are, in the main, non-linguistic. He elaborates that such objectives include consumer protection, scientific exchanges, national integration, political control, economic development, the creation of new elites or the maintenance of old ones, the pacification or co-option of minority groups and mass mobilisation of national or political movements. Obeng (2002: 71) illustrates the same point and like Francis and Kamanda discussed above, notes some level of hypocrisy on the part of policy planners when he says that “most African Governments have vacillated in their rhetoric and their practice concerning language policies but proceed with little or no implementation of such policies because of their fear of stepping on some big toes, both at home and abroad, and therefore causing political turmoil or losing political power”. Ferguson (2000:101) concedes though that such fear is well-founded because implementing such policies would isolate these African governments from the international community, obstruct access to science and technology,

promote “parochialism” and limit inward investment and aid from the richer countries of the North.

Language planning can also serve as a tool for empowering groups and individuals, for creating and strengthening national bonds and ties, and for maximising educational and economic development and can also be used “to maintain and perpetuate oppression, social-class discrimination and social and educational inequity” (Reagan, 2002: 420).

According to Kerr (1976 in Reagan, 2002:420-421) in order for a language policy to work effectively, it must pass the following tests:

- The desirability test, which states that the community must believe that the policy is desirable.
- the justness test, which states that the policy must be just and fair and treat all language groups equitably and appropriately.
- The effectiveness test, which states that the policy must be able to achieve its objectives.
- the tolerability test, which states that the policy must be resource-sensitive, pragmatic and not put a big strain on available teaching/learning resources.

According to Makanda (2009), the premise that a government can ‘authorize’ what languages to use, how language planning should take place and in what form, has both strengths and weaknesses. The involvement by government in language planning can be restrictive and therefore, can result in the exclusion of other players in the field of language planning. Mutasa (2003:25) also observes that “any other organizations not commissioned by the Government are excluded from language regulation”. Besides, government motives for involvement in language planning may actually be a result of a desire to control the minds of its people. An unpopular government may legislate on what forms of language planning should take place for the people that the same government oppresses.

However, this disadvantage is countered when we bear in mind Haugen’s (1959) definition of language planning as “the activity of preparing a normative, orthography grammar, and dictionary for the guidance of writers and speakers in non- homogeneous speech community”.

This is a positive observation as it also reminds language planners to look into the various forms or dialects of other languages to come up with acceptable results in the planning of language.

According to Roy-Campbell and Gwete (undated:208) language planning is “a problem solving activity, concerned with deliberate language change for specific aims, which may be social, political or educational”. From the above definition it is quite clear that language planning involves choosing a suitable language or languages of the government or the development of a particular language so that it can perform certain functions in an effort to solve the communication problems within a community. It is an institutionally organised activity that enhances communication and necessitates the interaction of people within the society.

From the definitions cited above, Cooper (1989:45) adds another dimension to the definition of language planning when he refers it to “the deliberate efforts to influence the behaviours of others with respect to the acquisition, structure or functional allocation of their language codes.” This definition looks at the responsibility of language planning beyond the government but to include the behaviour of the people who use the language. It involves influencing people’s attitudes towards language and convincing them to the necessity to change their linguistic behaviour. Language planning has thus come to mean the ways in which organized communities, united by religious, ethnic or political parties, consciously attempt to influence the language(s) their members’ use, the languages used in education, or the ways in which academics, publishers or journalists make the language change.

There is a thin line of distinction between language planning and language policy, so much that the two concepts are used interchangeably. Language policy often refers to both the process and the end result. It is the outcome of language planning. It can be formulated at any stage of the language planning activity.

Kaplan and Baldauf (1997), Reagan (2002) and Crystal (2003) identify two types of language planning, namely corpus planning and status planning and these will be discussed below in detail. However Haugen (1983) presents a language planning model which shows that corpus planning focuses on language while status planning focuses on society and they elaborate that the

societal focus, which falls under status planning, consists of those decisions a society must make about language selection and the implementation to choose and disseminate the language or languages selected while the language focus, subsumed under corpus planning consists of linguistic decisions which need to be made to codify and elaborate a language or languages.

3.3.1 Status planning.

Status planning on the other hand “deals with the standing of one language in relation to others” (Crystal, 2003: 358) and is concerned with the social and political implications of choosing a language and with such matters as language attitudes, national identity, international use and minority rights. According to Kaplan and Baldauf (1997:30) “status planning can be defined as those aspects of language planning which reflect primarily social issues and concerns and hence are external to the language(s) being planned” and is concerned with attempts to modify the environment in which a language is used. Cooper (1989:99) understands status planning in terms of deliberate efforts to influence the allocation of functions among a community’s languages and proceeds to identify (citing Stewart 1968) 10 functions of language as targets of status planning. These are: official, provincial, wider communication, international, capital, group, educational, school subject, literary and religious. To these 10, Cooper adds two more, namely, the function in the mass media and in work. It is outside the scope of this study to detail all but one (the educational function) of these functions. Cooper (1989:99-118) has a fuller discussion of each of these functions.

Language status activities deal with giving a language the status of an official language, national language, language of religion or medium of instruction (language of education). This language status embraces other activities including whether or not the range or use of language for particular functions should be maintained, expanded or restricted. The choice of a language in a multilingual situation is motivated by political economic and cultural issues, hence the involvement of government officials in this type of language planning. According to Viriri (2003) language status planning is not looked at in isolation but it goes hand in hand with the overall planning of social policies of the state. The context in which the language operates defines the status of a language. Kloss (1969:15) says status planning focuses on the language’s standing alongside other languages whilst other scholars like Fishman (1974:80) suggest that

status planning be called function planning since it is mainly concerned with the function allocated to the language.

3.3.2 Corpus planning

Corpus planning deals with the way language norms are chosen and codified and involves the selection of a national language, reformation of the spelling system, launching of campaigns for plain and non-sexist language and introduction of literacy programmes (Crystal, 2003:358). Reagan (2002) notes that corpus planning focuses primarily on lexical development and expansion of specific languages such as Afrikaans and other African languages in the South African context and adds that creation of new terminology and production of dictionaries and textbooks are examples of corpus planning. In other words Corpus planning activities refer to steps taken to ensure that the language is modified to conform to the demands made by its new functions. Corpus planning is mainly involved in the codification and standardisation of a language. The language is codified and changes its status as it receives some attention that may lead to further researches, gap filling and modernisation. According to Hornberger (1990:12) corpus planning involves standardisation, terminology unification, stylistic simplification, auxiliary code standardisation, purification, reform and graphization. The activities of this language planning deal with the characteristics of language itself, for example, expanding vocabulary through the creation of terms and standardization of existing terms, spelling rules, simplifying language registers, developing orthographies, prescribing pronunciation rules. Corpus planners are usually linguists or private ideologues. It takes place in a socio political context. Corpus planning mainly focuses on the nature of the language itself that is, its structure and form. Fishman (1974:293) describes corpus planning as, “The authoritative creation of new terms, at least for purposes of daily life, including daily technology.”

Corpus planning involves two aspects namely: codification and elaboration. Codification includes processes such as graphisation, grammatication, lexication and harmonization where as elaboration is simply modernization. This study falls squarely into the status language planning type since it is an exploratory survey on the possibility of using ChiShona as a languages of instruction in the teaching of Mathematics in primary schools.

3.3.3 Acquisition Planning

In addition to the two types of language planning, namely status planning and corpus planning discussed above, Cooper (1989) adds a third type i.e. acquisition planning. Cooper goes on to define acquisition planning as that type of language planning that is aimed at increasing a language's users. Citing Prator (undated), Cooper (1989:33) argues that since language planning involves language teaching, those aspects of planning that are directed towards increasing the number of users i.e. speakers, writers, listeners or readers, warrant a separate analytic category. To draw a dividing line between status planning and acquisition planning, Cooper says that when planning is directed towards increasing a language's uses, it falls within the rubric of status planning and when it is directed at increasing the number of users it falls under acquisition planning.

Makanda (2009) argues that language acquisition is one area that has also taken centre stage in the planning of language. The main aim of acquisition planning is to increase the numbers of users of a language. According to Cooper (1989:33), "Acquisition planning is directed toward the increase of the number of users of a language that is speakers, writers, listeners, or readers". Cooper (1989) cited in Makanda (2009:29) also singles out three "types of acquisitional planning with respect to overt goals" which are;

- Acquisition of a language as a second or foreign language, in the case of Britain and United States of America that have programmes to teach immigrants English arguably for the purpose of enhancing their chances to secure jobs.
- Reacquisition of a language by people for whom it was a vernacular as in the case of Maori and Hebrew languages.
- Language maintenance as efforts to stop the death of a language.

3.4 ORIENTATIONS OF PLANNING

Language planning is usually influenced by the manner in which language planners view language. Ruiz (1984:4) proposed three orientations towards language in a linguistically diverse society: languages as a problem, as right, or as a resource.

(a) Language as a problem

The existence of many languages in a society may hinder communication within a society. Language is viewed as a problem to communication or an obstacle standing in the way of incorporation of members of linguistic minorities into the mainstream. Thus, the language as a problem approach to language planning focuses mainly on problem solving, that is, it seeks to identify language problems and formulate alternatives for solving them (Magwa, 2009). Mackay (1979:48) contents that language problems are inherent in the multilingual situation, the more languages there are to choose from more complex the problems tend to become. What this implies is the problem of which language to choose for use for official purposes in a multilingual society. According to Haugen (1972:512), language planning is called for whenever there are language problems with no foreseeable program of language planning. Linguistic problems may be regarded as those problems that are mainly concerned with the structure of the language or its use whereas non-linguistic problems are language problems that are found within the social and political framework. Therefore, any attempt to provide solutions to language problems should go beyond the language itself to the community in which the language is used.

(b) Language as a right

This approach to language planning focuses on the sentimental aspects of language which deal with the individual and group emotions, beliefs, convictions and values for their language (Mutasa, 2004:30). Language is a right which every person has the option to learn and use in his own language in any capacity. Language is seen as the right of an individual and this is in line with the 1996 Barcelona Universal Declaration on linguistic rights, which emphasized non-discrimination, pluralism and community initiatives in language use. Ruiz (1984:22) states that language rights denote the opportunity to “effective participation in government programs” which includes such aspects as bilingual unemployment benefit forms, bilingual voting materials and instructional pamphlets and interpreters. This would mean that every language should be used in schools as a medium of instruction. When people’s linguistic rights are acknowledged, the full participation of minority groups in all national activities such as judicial and administrative proceedings, civil service, examinations, voting and public employment is guaranteed.

(c) Language as a resource

Mutasa (2003:38) asserts that “under the language as resource orientation, the emphasis is on the importance of conserving and developing all of its linguistic resources”. Language is a repository of culture, indigenous knowledge system, knowledge and culture which is passed on from generation to generation. This means it perpetuates the being of nations, races and ethnic groups. In other words the language as a resource model describes every language as an asset or a treasure.

Language choices in this approach are made on strictly economic grounds in much the same way as other resources in the nation’s economy are planned and consumed. It follows from this concept that language like any other commodity, is also subjected to cost benefit analysis in which the cost of a language selected for a particular purpose can be measured in terms of what could have been gained by the choice of another language for the same purpose (Magwa, 2008).

Language planning in Zimbabwe could benefit immensely from these ideological orientations hence the research is guided by these theoretical dispositions as the researcher tries to articulate the many aspects of language planning and policy discussed in the different sections of this study.

3.5 STAGES OF LANGUAGE PLANNING

The process of language planning need to be done in a systematic manner which allows for evaluation either at every stage or at the end of language planning process. Mutasa (2004:25) argues that language planning goes through three stages which are planning, implementation and evaluation. The planning stage will include brainstorming, how the problem can be approached and the implementation would be to put into action what would have been planned, with the evaluation taking place at the end of the exercise. On the other hand, Haugen (1983) emphasizes selection, codification, elaboration and implementation in language planning. His approach does

not provide for evaluation of the process of language planning. This is despite the fact that evaluation is important in order to come up with an acceptable outcome.

In coming up with such stages Haugen's seems to have acknowledged what Fishman (1974) had already propounded as the ideal situation for language planning stages even though he dropped the decision making and evaluation stages that are found in Fishman's model. Rubin (1971) seems to provide the most suitable model of language planning which can be used globally irrespective of whether the society is bilingual or multilingual. He described the four stages of language planning as, fact finding, planning (goals – strategies and outcomes) implementation and feed back (evaluation).

(a) Fact Finding

This is the first step in the development and implementation of a language policy which involves an extensive research. It may take different forms, such as a survey of the language situation in a country with information on number of speakers, extent of bilingualism, domains of language use, a description of the different dialects or a dialect continuum from which a standard is to be selected, an evaluation of the effectiveness of competing media of instruction, or an examination of language needs in specific domains. Rubin (1971) is supported by Bamgbose (1991:140) who observed that in language planning fact finding, should precede policy decisions and that other things being equal, a decision arising from a full knowledge of all the facts involved is better than one that is based on partial knowledge or none at all. What is important is the pre-knowledge that is gathered before a decision on policy is made, and therefore this aspect must precede any other stage. This is not so in most African countries on indigenous languages as they are involved in post-policy fact-finding (Bamgbose, 1991:141). Extensive research is required in order that the language planners come up with information that relates to demographic, situational and attitudinal factors, which determine the success of effective language planning (Mutasa (2004:26). In conclusion there is need to establish three types of basic data, attitudinal, demographic and situational, that determine the success of effective language planning.

(b) Planning

The planning stage is informed by the fact-finding stage in order to come up with the desired goals or aims, necessary strategies to achieve the aims and an acceptable outcome. According to Mutasa (2004:26) the planning stage also considers external factors that may not be directly involved since the change factors. For instance, doing a cost-benefit analysis of all linguistic and non-linguistic goals may include the time-frame the research may take.

(c) Implementation

Having planned what needs to be done and what strategies are to be used the actual process will then be put in motion and the actual planning activity will then be carried out. This stage can be equated to the legitimating of public policy planning where stake holders or interest groups are then involved. In other words the debate on the intended policy is anchored on this stage and the lobbying and motivation of stake holders is done at this point in time.

(d) Evaluation

This being the last stage of language planning, a number of factors are given a re-look to ensure that the desired goals have been achieved and where there is need to reconsider certain aspects of the process of language planning, it can be done before the matter can be passed as policy.

When the policy has been declared the evaluation process continues to assess “its effects on real –world conditions”, Dye (1987:351). Dye describes five conditions which he says must be evaluated on a well crafted policy which are:

- i. Its impact on the target situation or group
- ii. Its impact on situations or groups other than the target (spill over effects)
- iii. Its impact on future as well as immediate conditions.
- iv. Its direct costs, in terms of resources devoted to the programme.

3.6 THE RESEARCH METHODOLOGY

The quantitative and qualitative methods will be used in this research. This is done to achieve maximum benefit from the positive aspects and qualities of both methods, while at the same time

indicating and eliminating weaknesses inherent in these methods. According to Makanda (2011) the quantitative method is very useful as statistics are gathered during the field investigation of the research. The qualitative method is analytical in thrust will be used to investigate the studies that have already been published and unpublished data that the research may come across. According to Leedy, as quoted by Mutasa, (2003:15) qualitative and quantitative differ in the sense that qualitative research data is verbal and quantitative research data is numerical. The qualitative approach describes and gives answers from the participants, point of view. The approach uses data to identify items, explain aspects of usage, and to provide real life examples of usage.

3.6.1 The Research Design

The descriptive survey method will be used to collect primary data required in this study. It is most appropriate design for a study of this nature because Leedy (1993:67) says the design involves looking at phenomena of the moment with intense accuracy. According to Babbie (1985) surveys may be used for descriptive, explanatory and exploratory purposes. The method is well presented by Best in Cohen and Manion (1994:67) who says it is concerned with:

... beliefs, points of view or attitudes that are held, processes that are going on; effects that are being felt, or trends that are developing. At times descriptive research is concerned with how what is or what exists is related to some preceding event that has influenced or after a present condition or event.

It is sometimes referred to as the normative survey method since it regards what is observed within a given time and space as normal especially when the event occurs under the same conditions. It also affords the researcher the opportunity to participate as he or she observes phenomena. Babbie (1985), Collins et al (2003) and Nachmias and Nachmias (1996), agree that descriptive surveys are useful for exploratory studies and are well suited for producing information about particular characteristics in a finite population. The descriptive survey design involves looking at phenomena of the moment with intense accuracy. Insights from Bell (1987), Cohen and Manion (1994), Collins et al (2003) and Leedy (1997) support the use of descriptive survey in this study.

The descriptive survey will be used in this research because it involves the use of varied instruments namely questionnaires, interviews and practical teaching. The use of questionnaires, interviews and practical teaching result in data triangulation which will in itself validate the findings of the study by either confirming or rectifying data sought through different instruments. Bailey (1987:263) defines triangulation as a means that the data are gathered by comparison of results of two or more methods. This implies that triangulation methodology involves the use of both qualitative and quantitative methods of data collection. According to Terre Blanche and Durrhem (1999:128) as quoted by Mutasa (2003:15), triangulation helps the researcher to “home in” on a correct understanding of a phenomenon by approaching it from several different angles. Mouton and Marais (1988: 91) see triangulation as a type of research that “encompasses multiple sources of data collection in a single research project to increase the reliability of the results and to compensate for the limitations of each method” (Mutasa, 2003). Triangulation is chosen in this study in order to increase reliability of the results and to counterbalance the limitations of each method. In fact the use of a variety of methods to collect data is important in the sense that it yields a more complete picture of the phenomenon being studied. According to Leedy (1993:144) in triangulation the weaknesses and strengths of each chosen method complement each other resulting in improved validity of the data collected.

This design also has qualitative and humanistic thrust that suits well with the investigation into the study of human subjects. The method allows the involvement of the subjects rather than relegating them to scientific objects whose reaction could be predetermined and therefore uniform. The method also allows being empathetic and reflective, learning how the subjects think but without thinking like them, (Borg and Gall, 1992).

3.6.2 Population and Sampling

Best and Khan (1993:13) define a population as a group of individuals that have one or more characteristics in common that are of interest to the researcher. The population is a group of people who are the focus of a research study and to which the results would apply. Thus, the population is the group to which the researcher would like to make inferences. In this study, the

population comprised of college/university students, teachers/lecturers, and parents. Representative samples from each target group were selected in all the ten administrative provinces of Zimbabwe to participate in the study.

According to Johnson and Christensen (2000: 156) sampling is the process of drawing from a population for research purpose. It is a way of selecting a given number of persons from a defined population as representative of that population (Borg and Gall, 1996; Chiromo 2006). When sampling, the researcher draws a representative sample from a large population as this saves time and expenses incurred if one had to study the whole population. The other advantage is that the researcher reaches conclusions about an entire population by studying only a small sample. Bailey (1987: 82) and Melville and Goddard (1996:29) define a sample as a subset of the total population. This means that it is not necessary to investigate the entire population, but the researcher must ensure that the sample must be representative and accurate. Sampling is all about reducing the population to a manageable and representative size.

A sample size of 750 people was used in this research. 40 Grade 4 learners (in Bulawayo), 250 parents (25 parents from each of the ten Provinces of Zimbabwe), 10 lecturers (in Bulawayo), 200 college and university students (20 from each of the ten Province) and 250 teachers (25 teachers from each of the ten Provinces of Zimbabwe). The samples for teachers, lecturers, parents and college/university learners were randomly selected from their provinces or institutions where they learn or work.

A Grade 4 class of 40 learners at Ross Camp Primary school was conveniently chosen for this study as it is one of the co- educational primary schools that teach ChiShona in Bulawayo where the researcher is also based. The ratio of girls to boys is about 1: 1. The Grade 4 classes are not streamed and can be assumed to be of mixed ability. The Sample is also rich in information such that it can be easily generalised to the entire population under research. The only days the researcher had access to the pupils was on Mondays, Wednesdays and Fridays. These are the days that the school had sporting activities and clubs. To ensure maximum regular attendance of lessons during the practical teaching experiment a convenient sample of 19 boys and 21 girls was

used. Their ages ranged between 9 and 10 years. These learners were selected from those who had indicated that they were from a ChiShona speaking backgrounds and could speak and understand ChiShona. The Grade 4 class was divided into two groups of 20 learners each, Group A and Group B. Group A learnt Mathematics using ChiShona as the medium of instruction and Group B will be taught the same topics and concepts in English.

The teachers/lecturers in this population have different lengths of teaching experience, qualifications, academic levels taught, and different mother tongues. The selection was made in this manner in order to get a comprehensive picture of the array of factors that affect the teaching of Mathematics through the use of ChiShona as a medium of instruction in primary schools of Zimbabwe.

3.7 DATA COLLECTION INSTRUMENTS

The data for this study was gathered through the use of practical teaching experiment by the researcher, questionnaires, and interviews.

3.7.1 The practical teaching experiment

This study involves conducting a practical teaching experiment with a Grade 4 class from Bulawayo province. According to Kelly and Lesh (2000:267) teaching experiments afford researchers first hand learners' mathematical learning and reasoning. Learners' Mathematics is indicated by what they say and do as they engage in mathematical activity and as a basic goal of research in a teaching experiment. In this study the practical teaching experiment was chosen for two reasons. First, the researcher wanted to have firsthand experience of introducing the teaching of Mathematics using ChiShona as a medium of instruction. The practical teaching experiment would afford the researcher to learn more about the teaching of Mathematics using ChiShona as a medium of instruction and how the learners develop the concept of Mathematics in ChiShona. Secondly in order to clearly conceptualize the theory developed in the literature reviewed, one needs to implement the ideas to get more information on experiences and the nature of the teaching of Mathematics using ChiShona as a medium of instruction.

The practical teaching experiment was designed to run for four weeks during the first school term of 2011 with a class of Grade 4 learners at Ross Camp Primary School. This is the period when primary school learners will switch from ChiShona to English as required by the Educational Act 1987. According to The Education Act 1987 the fourth grade shall use English as the medium of instruction, provided that ChiShona or Ndebele shall be taught as subjects on an equal-time-allocation basis as the English language.

In this teaching experiment the researcher is also the teacher. The practical teaching experiment involved designing a teaching programme in which six-thirty minute lessons were conducted on average three of times a week. The school runs one session a day from Monday to Friday throughout the school year and the session runs from 0730 – 1530. Mathematics is allocated six lessons a week on a time table and the lesson is 30 minutes long. A topic on '**Addition and Subtraction of large numbers**' (*Kusanganisa ne Kubviswa kwemaNhamba*). was planned to be completed in four weeks. The Grade 4 mathematics syllabus at the school uses the main textbook as '*New Ventures in Mathematics, Grade Four, written by Skinner Dennis*'. The learners that were involved in the study were taught during the afternoons on Mondays, Wednesdays and Fridays during one study period and two club periods that were timetabled in the afternoon from 1400- 1500hours. The lessons were conducted in the pupils' base rooms at the school.

The Grade 4 class was divided into two groups of 20 learners each, Group A and Group B. Group A learnt Mathematics using ChiShona as the medium of instruction and Group B was taught the same topics and concepts in English. The teaching experiment learners were assigned code numbers that they had to use to identify themselves each time they had written work.

The first step was to give a pre-test to each group in English. The purpose of the pre- test was to enable the researcher to reasonably rule out any selection differences between Group A and Group B that could account for differences that would be found in the results. The pre-test was also necessary to assess where the learners were starting from the mathematical reasoning. In other words it was necessary to determine the learners' entry point and how they would present their work. After the pre-test the learners worked on tasks that involved addition and subtraction of numbers. **Addition of numbers** (*Kusanganiswa kwemaNhamba*) as a topic was done during

the first two weeks and **Subtraction of Numbers** (*Kubviswa kwemaNhamba*) was done the last two weeks of the four weeks.

3.7.1.1 The development of terminology to be used in teaching Mathematics using ChiShona as a medium of instruction.

The use of Chishona as a language of instruction has been confined to the domains related to cultural activities and the teaching of ChiShona itself. The constraint of terminology has been real and a handicap to the use of ChiShona as a medium of instruction to other primary school subjects. The researcher has been motivated to use ChiShona in the teaching of Mathematics after having realised that “ in Zimbabwe, thousands of teachers who studied Science courses in Spanish in Cuba today teach those Science subjects in English and the students have produced good results (Mutasa, 2003 :307)”. This implies that the development of study material can be achieved through translating existing material from English to indigenous African Languages. If a subject is to be taught in a chosen medium of instruction it means teaching material should be readily available in that language. In this study learning material was taken from the Grade 4 mathematical prescribed book which is written in English and the researcher had to translate the Chapters understudy into ChiShona. Some key terms, for example, **Nhamba**, for Number, **peji**, for page, were borrowed from English or translated into ChiShona (see list of terms on the Appendices) because currently there are no material resources to support ChiShona, a mother tongue, as a language of instruction in the teaching of Mathematics in primary schools. This is how some other languages have developed and ChiShona is no exception. In fact it is an open secret that the renaissance of English was a result of the introduction of many Latin and French words into English which intimates that no language self sufficient as to shun adoption (Mutasa2003). A language is like river which picks what it can along the way and drops for another. In developing its terminology for use in the teaching of Mathematics in primary schools, ChiShona can borrow terms from English and other developed languages and use them in the teaching –learning situations. This is supported by Mutasa (2003:308) when he says “most languages grew through appropriation, transformation and integration of terminologies or vocabulary of other languages.” Appropriation, transformation and integration of terminologies are the most operational strategy that does not create a rift between language and the nation.

After teaching both groups, each one with its respective medium of instruction a post test was given. The post-test was used to assess the learners on what extent to which their initial knowledge had been developed into ChiShona concepts. Some of the lessons were used for writing the pre/post-tests. The learners' interests in the practical teaching experiment grew with time.

Twelve lessons were planned and taught in ChiShona to Group A and the same lessons were planned and taught in English to Group B. If Mathematics is to be taught in ChiShona it means the teaching material should be readily available in ChiShona. Lack of teaching material for Mathematics written in ChiShona is a barrier in this study. As a way forward the researcher translated the existing study material from English to ChiShona. Some English terminologies used in Mathematics were borrowed into ChiShona and enabled the researcher to teach the mathematical concepts in the indigenous African language. This is how ChiShona can also be developed. It is an open secret that the renaissance of English was a result of the introduction of many Latin and French words into English which intimates that no language is self sufficient as to shun adoption. A language is like a river which picks what it can along the way and drops for another.

The role of the researcher in this experiment was to design and provide the appropriate learning tasks and experiences in the learning of mathematics through the use of Chishona as a medium of instruction. In each lesson the researcher started by giving the pupils a task to do. The learners were given time to work on the tasks individually or in groups. No criterion was used to allocate the learners into groups. Initially learners chose whom to work with until gradually the groups became more permanent. After spending time on a task a whole class discussion would follow in which groups or individual solutions were presented and discussed.

3.7.2 The Questionnaires

Before the questionnaires were used a pilot study was carried out in Bulawayo with 20 people to test whether the instrument is intelligible. The researcher carried out group administration of the questionnaires which had advantages of high response rate, shorter data collection time and gave

the researcher a chance to verbally explain the purpose of the survey and answer any questions from the respondents.

A questionnaire is a form prepared and distributed to respondents to secure responses to certain questions (Borg and Gall, 1996:320). Seliger and Shohamy (1989:172) define questionnaires as printed forms of data collection, which includes questions or statements to which the subject is expected to respond. Furthermore, Chikoko and Mhloyi (1995:69) say questionnaires make it possible for the researcher to measure what a person knows, likes, or dislikes and what he or she thinks about an idea. A questionnaire is therefore a series of carefully planned and appropriately worded questions or items on a specific subject set down on paper and provided with spaces where the respondent can fill in the answers or select the answer by putting a mark in the appropriate space. Questionnaires share some characteristics with interviews especially in the sense that subjects are required to provide information in response to a stimulus provided by the researcher. In this study the questionnaire was used to extract data that was embedded deep in college/university learners, teachers, lecturers and parents' minds or within their attitudes, feelings or reactions towards the use of ChiShona as a medium of instruction in the teaching of mathematics in primary schools. The questionnaire was administered to 200 college/university learners, 250 teachers, 10 lecturers, and 250 parents. This instrument enabled the researcher to cover a wide area at minimum expense in money, time and effort. The instrument also allowed greater uniformity in the way the questions were asked and this enhanced comparability of the responses. The questionnaire instrument was self-administered and this gave the researcher an opportunity to explain to the participants, the purpose of the research and other items that needed clarification.

This systematic method of soliciting information from respondents helps researchers to remain focused on the subject area of research and also quickens the process of gathering information. Questionnaires can be distributed to a particularly chosen group of respondents. The use of a questionnaire according to Leedy (1979:191) "is a common place instrument for observing data beyond the physical reach of the observer". The questionnaire takes over the physical presents of the researcher and gathers the data A poorly done or planned questionnaire will result in poor or distorted results putting the whole research in jeopardy. According to Davis (2007:82)

“questionnaires are driven by the researcher’s own agenda, as they are intended to facilitate communication. One becomes a (respondent) by asking a question, and one replies to it conversationally, in writing, by ticking a box, or in a website by clicking one’s mouse to make an electronic response”. “This therefore demands the researcher to make the language unmistakably clear” Leedy (1997:192). In the preparation of the questionnaire Leedy (1977:193) came up with a list of what must be considered of significance in questionnaire, which for him, are the need to:

- Be courteous. In order to persuade the respondent to help in the answering of the question.
- Simplify: To make the instrument as simple to read and to respond to as possible.
- Consider first impressions (As the respondent sees it)
- Concentrate on the universal. Try to address your questions to universal rather than to specifics, to general problems and ideas then to purely personal matters.
- Make it brief
- Check for consistency

Advantages of Questionnaires

A notable advantage of using questionnaires in a research study is that they are usually self-administered and can be given to large groups of subjects at the same time. This makes them an efficient tool to collect data from a large group (Laws, 2003:306). Questionnaires are therefore less expensive as compared to interviews. Through the use of questionnaires, data can be collected in the same replicable way from a large number of informants making comparison of results easier and conclusions clearer.

Another advantage is that when anonymity is assured, information of a sensitive nature can be shared more easily (Seliger and Shohamy, 1989:172). Data collected using questionnaire are more uniform and standard since all subjects are given the same questionnaire. This augurs well for easier presentation, analysis and interpretation.

Finally, in using a questionnaire, it is possible for the researcher to use different types of questions, open and closed, on the same questionnaire, thereby enabling him/her to get rich information.

Disadvantages of questionnaire

One disadvantage of using questionnaire is associated with a low return rate especially with mailed questionnaires, thus influencing validity of findings (Seliger and Shohamy, 1989:172). Questionnaires are not appropriate to subjects who cannot read and write but in the present study, it was appropriate to use them because all members in the sample, being teacher, college and university learners and parents were literate. In addition, the validity of the data gathered through questionnaires may be compromised if subjects are aware of what the investigator is seeking. In the present study, the researcher attempted to minimise the chances of the participants getting aware of what was being investigated by not spelling out in the questionnaire instrument.

It is also important to note that questionnaires cannot probe deeply into respondent's opinions and feelings (Gall et al, 1996:289) as interviews do. Once the questionnaire has been distributed it is not possible to modify the items.

These disadvantages were offset through the use of other techniques of data collection namely interviews.

3.7.3 Interviews

Collins et al (2000:177) define an interview as "...a face to face meeting between two or more people in which the interviewer asks questions while the respondent answers back". Interviews involve conversations which are highly skilled performances. It is a quite extensive technique used in field research, which can be described as a conversation with an objective. According to Denzin and Lincoln (1994:353) "Interview is the most favourable methodological tool of the qualitative research or in other words the most popular way of collecting data in interpretive research". Interview exists in three forms, namely, structured, unstructured and open-ended.

Miller and Glassner (1997:00) observed that; “Those of us who aim to understand and document others understandings choose qualitative interviewing because it provides us with a means for exploring the point of views of our research subjects, while granting these points of view the culturally honoured status of reality”. As interviews are normally a face to face technique, they give the researcher an opportunity to understand the real message being communicated by the respondent, as the researcher is exposed to cues of communication such as facial expression, gestures and body language. The interview gives one the opportunity to know intimately what the people think and feel. It is the most common and powerful way we use to understand fellow human beings.

Structured interviews were carried out with parents, college/University learners and teachers. The college/university learners were interviewed because these are language practitioners and researchers passé who contribute to language debates. These are learners who also make a choice with regard to medium of instruction. Such a choice is determined by their attitude. The parents were selected for this purpose because they decide on their children to attend and the medium of instruction they want. Lecturers/l teachers were interviewed because they are directly involved in disseminating knowledge to children. These have depths of experiences with regard to children’s problems with media of instruction. The researcher surmised that teachers had untapped views on the use of ChiShona as a medium of instruction in the teaching of Mathematics in primary schools of Zimbabwe.

Advantages of Interviews

The following are the advantages of having interviews:

- Since interviews are personalised, they permit a level of in-depth information gathering, free response and flexibility that cannot be obtained by other procedures.
- Data that have not been foreseen can be probed and obtained. One would have not been able to obtain such information using the questionnaire.
- Interviews especially open ones allow the respondent maximum freedom of expression thereby allowing ample and unexpected information to emerge.

- It enables the researcher to present his or her interpretations on what goes in the classroom.
- Interviews build trust and rapport between interviewer and respondent thus oiling the extraction of information which respondents might otherwise be unwilling to give (Gall, et al 1996:289)

The Disadvantages of interviews

- Administration of interviews for research is sometimes costly and time consuming especially if one needs to interview a large sample.
- Interviews may introduce elements of subjectivity and personal bias into the data and that the rapport between the researcher and the participants may cause the participant to respond in a certain way in order to please interviewer
- It is also difficult to standardise the interview situation so that the interviewer does not influence the respondent to answer certain questions in a certain way.
- Because of its very nature, the interview can be subjected to prejudices. Some critiques according to Miller and Glassner (1997:99) pointed out that, “on the other hand, radical social constructionists suggest that no knowledge about a reality that is “out there” in the social world can be obtained from the interview, because the interview is obviously and exclusively an interaction between the interviewer and interview subject in which both participants create and construct narrative versions of the social world. The problem with looking at these narratives as representative of some “truth” in the world, according to these scholars, is that they are context – specific, invented, if you will, to fit the demands of the interactive context of the interview, and representative of nothing more or less.”

3.8 DATA COLLECTION PROCEDURE

Data was collected through the use of practical teaching experiment, questionnaires and interviews. A Grade 4 class, divided into two groups, was sampled and used for practical

teaching. The Grade 4 class was used for the study because this is at the transitional level when learners switch from ChiShona to English as required by The Educational Act 1987. The researcher had access to the pupils on Mondays, Wednesdays and Fridays as these were the days that the school had sporting activities and clubs. During the practical teaching experiment learners were provided with paper to record their responses. At the beginning of the teaching experiment learners were assigned code numbers that they had to use to identify themselves each time they had written work. The teaching experiment was carried out in four weeks.

The questionnaire was used to extract data that was embedded deep in people's minds or within their attitudes, feelings or reactions towards the use of ChiShona as a medium of instruction in the teaching of Mathematics in primary schools. The questionnaire instrument was self-administered by the researcher to 200 college/university learners, 250 parents and 260 teachers/lecturers and this gave the researcher an opportunity to explain to the participants, the purpose of the research and other items that needed clarification.

Interviews were carried out with parents, university/college learners and teachers/lecturers who were randomly picked. The interview method enabled the researcher to probe in where vague or inadequate answers were given by respondents and this allowed the researcher to remain in command of the situation throughout the investigation. The interviews were audio recorded and transcribed, conducted in ChiShona or English to suit the different linguistic backgrounds of the participants.

3.9 DATA ANALYSIS AND PRESENTATION PROCEDURE

Processing of collected data was both qualitative and quantitative. Simple quantitative methods of data processing and analysis such as tables were used. The researcher would describe in detail the results obtained from the questionnaire and interviews. Information from both the questionnaires and interviews was processed qualitatively as well as quantitatively with the aid of a computer. Percentages and frequencies were also used to analyze data. The tallying system for example was used to determine the frequency of common responses. The total number (N)

for each coded category was entered in one column and respective percentages (%) in the other column as shown in the results chapters.

3.10 CONCLUSION

In this chapter the descriptive survey design was chosen as the research design because it involves the use of varied instruments namely questionnaires, interviews and observations. It was noted that the use of a variety of instruments results in data triangulation that in itself validates the findings of the study by either confirming or rectifying data sought through different instruments. Triangulation enables the researcher to approach a research problem from several different angles that increases chances of “homing in” on correct or useful findings. The method allows the involvement of the subjects rather than relegating them to scientific objects whose reaction could be predetermined and therefore uniform. Three data collection and analysis instruments used in this study, namely, the questionnaires, the interview and practical teaching experiment were outlined. In each case the rationale for selection of the instrument was given. The Chapter also discussed the advantages and disadvantages of each of the instruments. The next chapter will discuss the research findings in relationship to the teaching of Mathematics using ChiShona as a language of instruction to primary schools.

CHAPTER 4

FINDINGS: DATA PRESENTATION AND ANALYSIS

“...for without language, one cannot express the indigenous self, and therefore has nothing to express other than the selves of others in their languages”

(Anyidoho, 1992:55)

4.1 INTRODUCTION

This chapter deals with the presentation and analyses the research findings. Results from all three instruments, namely questionnaires, interviews and practical teaching are presented and analysed separately. The chapter will provide a quantitative analysis of the function of ChiShona as a medium of instruction in the teaching of Mathematics in primary schools, its implementation and the attitude of various respondents. Most of the respondents were drawn from institutions of higher learning and other academics. It also involved parents and teachers from different ten provinces of Zimbabwe.

The questionnaire was intended at investigating biographic data of the respondents, to measure their attitudes towards language use and preferences, and finally solicit respondent views on ways of promoting indigenous languages, such as ChiShona, and literature for socio-cultural and economic development. The personal data is merely to show the representativeness of the sample. Both male and female respondents were aged between 18 and 65 years. Respondents were people who came from all walks of life. They included professionals in the Ministry of Higher Education, teachers and parents. Amongst the respondents, were speakers of ChiShona and IsiNdebele. The research had a wide coverage of respondents whose educational qualifications range from Grade 7 to doctoral level. The interview complemented the questionnaire in data gathering. The practical teaching intended to find out the feasibility of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools, specifically to grade four learners was carried at Ross Camp primary school in Bulawayo. A total of 710 questionnaires were distributed to parents, teachers, lecturers and college/university students. The questionnaires were complemented by the face to face interviews that were carried out.

A Grade 4 class of 40 learners at Ross Camp Primary school was used for practical teaching experiment. The learners were given a pretest and posttest in order to find out how they performed in Mathematics when ChiShona is used as a medium of its instruction. In this teaching experiment the researcher is also the teacher. The practical teaching experiment involved designing a teaching programme in which six-thirty minute lessons were conducted on average three times a week.

4.2 DATA PRESENTATION

4.2.1 Background information about the learners in practical teaching

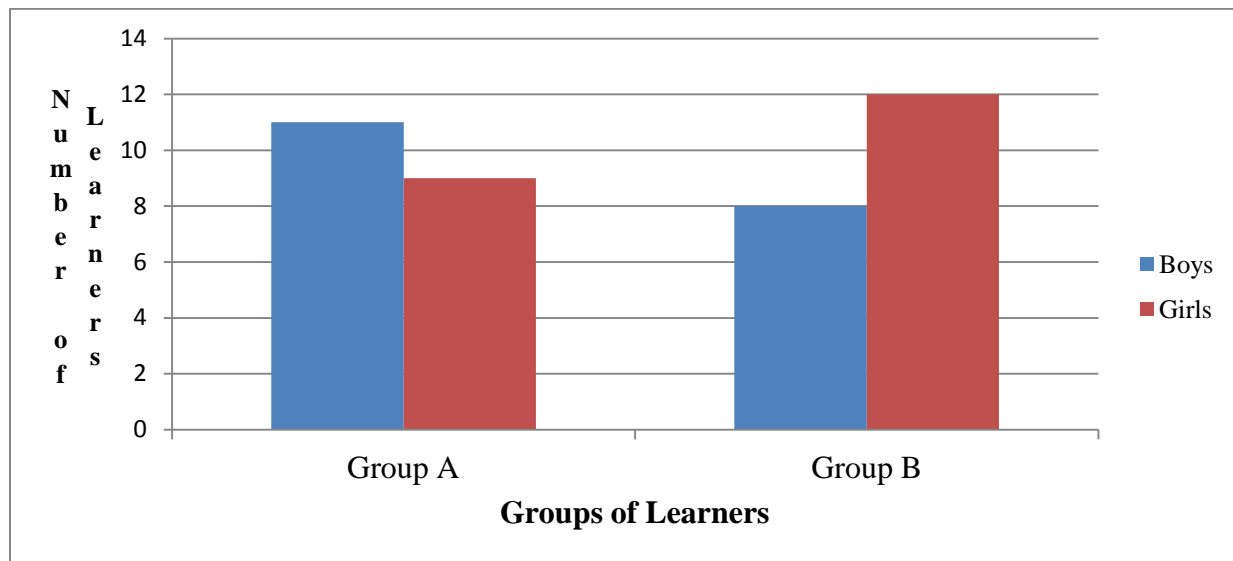
Personal information of the learners in Group A and Group B of the Grade 4 class understudy is presented in the following paragraphs.

Table 4.1: Distribution of the Grade 4 learners by gender in their Groups (N=40)

Group	No. of Boys	%	No of Girls	%	Total
Group A	11	55	09	45	20
Group B	08	40	12	60	20

The information in the table 4.1 has been presented graphically in figure 4.1 below and the analysis is discussed below the figure.

Figure 4.1: Bar Chart on the distribution of Grade 4 Learners by gender



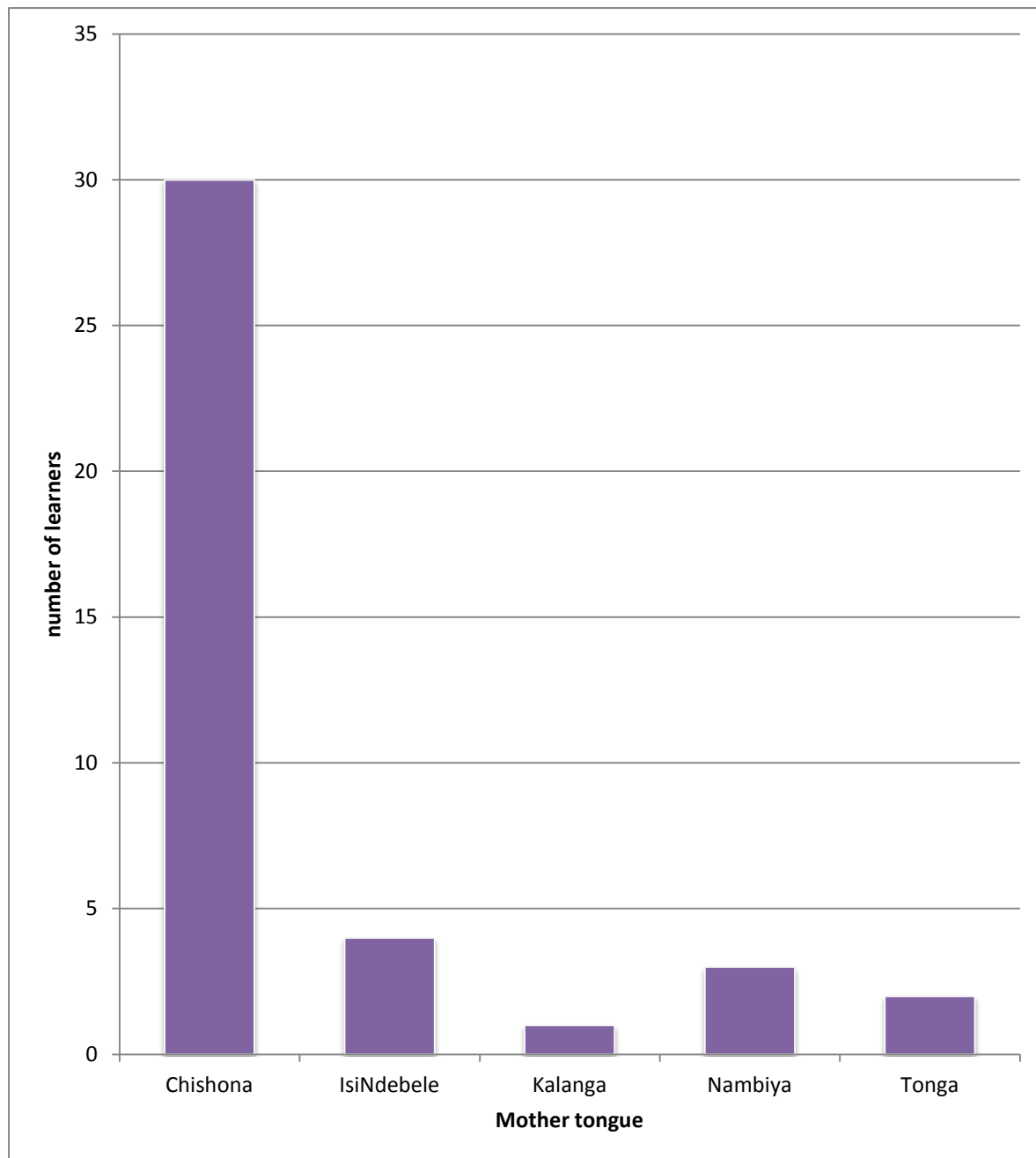
From Table 4.1, Group A shows that 55% of the Grade 4 learners were boys and 45% were girls. In Group B, 40% of the Grade 4 learners were boys and 60% of the Grade 4 learners were girls. In this class, the two groups had a total of 19 boys involved in practical teaching whilst 21 were girls. The Bar Graph in Figure 4.1 above shows that there are more boys than girls in Group A and more girls than boys in Group B. This Grade 4 class of 40 learners at Ross Camp Primary school was conveniently chosen for this study as it is one of the co- educational primary schools that teach ChiShona in Bulawayo where the researcher is also based. The ratio of girls to boys is about 1: 1. The Grade 4 classes at Ross Camp Primary school are not streamed and can be assumed to be of mixed ability. The Grade 4 class was divided into two groups of 20 learners each and coded Group A and Group B. Group A learnt Mathematics using ChiShona as the medium of instruction and Group B was taught the same topics and concepts in English.

Table 4.2: Distribution of the Grade 4 learners by their mother tongue (N=40)

Mother Tongue	Number of learners	Percentage (%)
ChiShona	30	75
IsiNdebele	4	10
Kalanga	1	2
Nambiya	3	8
Tonga	2	5
Other	0	0
Total	40	100

Information in Table 4.2 is graphically presented in a bar chart in Figure 4.2 below and the analysis is also presented and discussed below.

Figure 4.2: Show the Bar Chart for the Distribution of the Grade 4 learners by their mother tongue



The information about the mother tongue is important in this study since ChiShona is a mother tongue that will be used to teach Mathematics to Grade 4 learners. From Table 4.2, 75% of the Grade 4 learners selected for this study use ChiShona as their mother tongue and 10% use

IsiNdebele as their mother tongue. All the Grade 4 learners in Group A speak ChiShona as their mother tongue and Grade 4 learners in Group B have different mother tongues but all understand and can speak English. The mother tongue is the language through which the child is inducted into this world and it is through this language that the child will understand his/her environment and concepts far better. Scholars such as Bamgbose (1976) and Mutasa (2004) emphasized that mother tongue education ensures learners' performance at the maximal ability and psychological support. From Figure 4.2 above it is clear that 75% of the learners in the Grade 4 class understudy use ChiShona as their mother and none of them use English as their mother tongue. They use English probably when they are at school.

Table 4.3 : Shows the distribution of the Grade 4 learners by the language they can speak fluently

Language	Number of learners	Percentage(%) of the class
English	25	62
ChiShona	40	100
IsiNdebele	10	25
Kalanga	1	0,03
Nambiya	3	0.08
Tonga	8	20
Other	0	00

The information in Table 4.3 has been graphically represented in a bar graph in figure 4.3 below.

Figure 4.3: Shows the Bar Graph for distribution of the Grade 4 learners by the language they can speak fluently

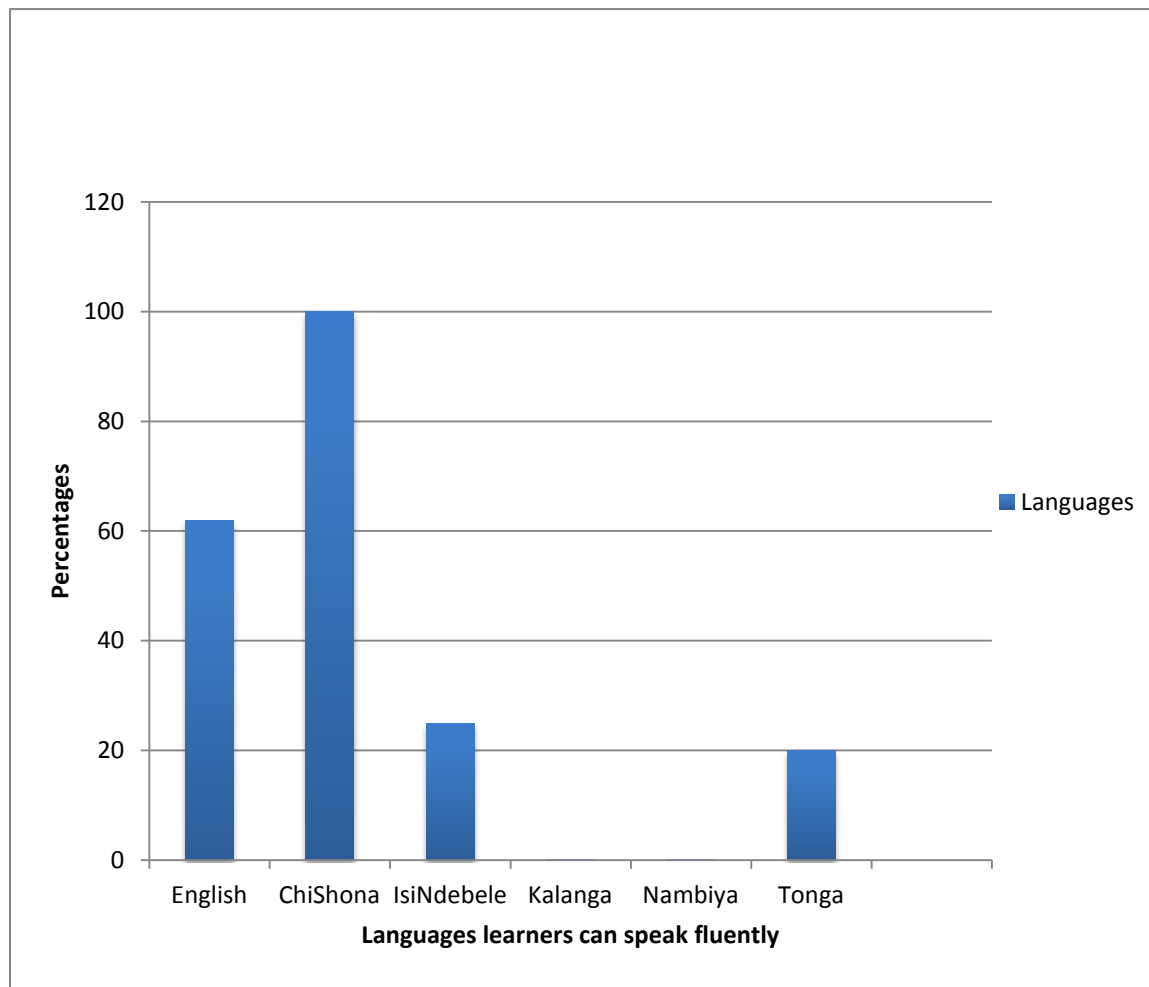


Table 4.3 represent the distribution of the Grade 4 learners using the language they can speak fluently. 100% of the Grade 4 learners in this study can speak ChiShona, 62% can speak English fluently and 25% can speak IsiNdebele fluently. From this Grade 4 class ChiShona and English are the common languages being spoken fluently by the learners. The Bar graph in figure4.3 illustrates the distribution of the Grade 4 learners by the language they can speak fluently. Similarly the bar graph clearly indicates that ChiShona and English are the main languages being spoken by the learners. English is the official language, a medium of instruction in schools and has a dominant position in science, technology, medicine, business, mass media and many other areas of human endeavour hence it becomes the most widely learnt foreign language. ChiShona,

an indigenous African language, is widely spoken by the population but not used as a language of instruction in schools is relatively of low status as compared to English.

4.2.2 FINDINGS FROM PRACTICAL TEACHING

4.2.2.1 Responses from the practical teaching experiment of Group A.

Table 4.4: Results of the pre-test and post-test given to Group A (N=20)

LEARNER'S CODE	PRE-TEST (%)	POST- TEST
01A	48	56
02A	72	78
03A	60	64
04A	48	70
05A	36	48
06A	44	52
07A	88	90
08A	56	76
09A	60	68
10A	72	72
11A	56	68
12A	56	70
13A	80	80
14A	84	88

15A	24	48
16A	36	48
17A	56	68
18A	68	78
19A	76	76
20A	48	60
TOTAL	100	100
Average Mark	55.9	67.9

Statistics shown in table 4.4 above is also graphically presented in figure 4.4 below.

Figure 4.4: Bar graph for the results of the pre-test and post-test for Group A learners

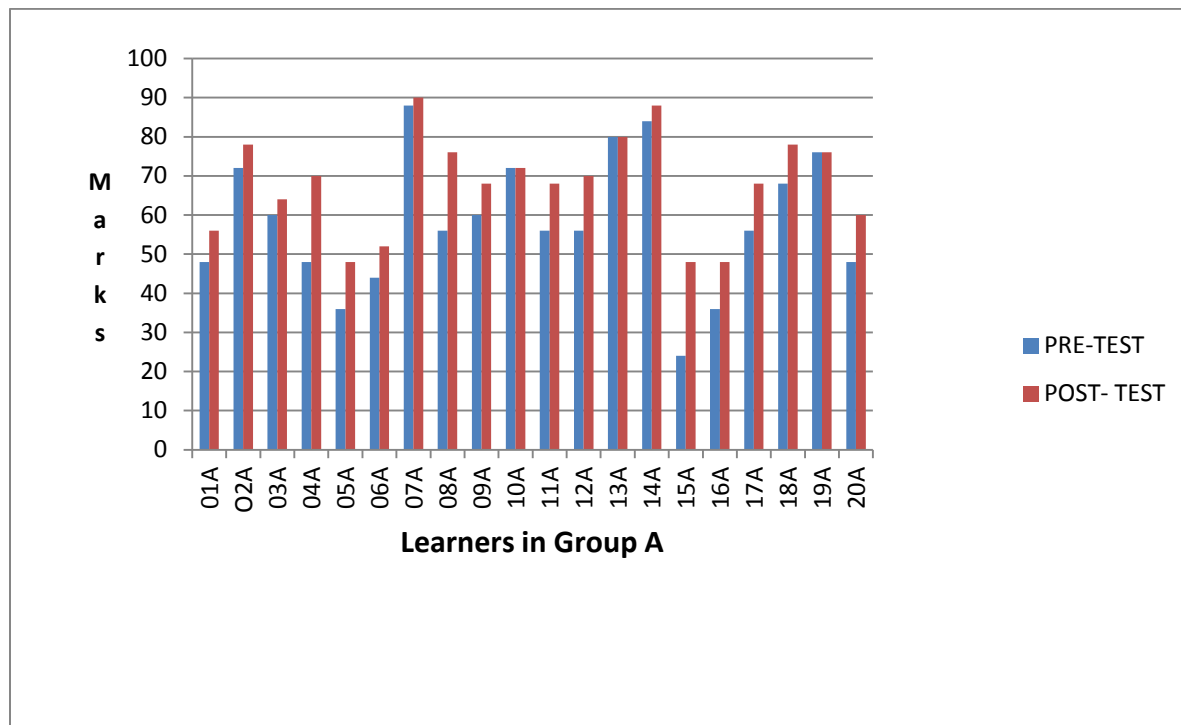


Table 4.4 show the data collected from the pre-test and post-test of Group A. Group A was taught Mathematics using ChiShona as a medium of instruction. The results of the pre-test show that seven of the Grade 4 learners did not do well and the rest passed the test. The pre-test was given to test the assumed knowledge on how the learners mastered the concepts of addition and subtraction. The results of the post- test show that only three learners failed the test and most of them had shown an improvement in their performance. The pass mark was 50%. Similarly the Bar graph above shows the individual performance of Group A learners on both the pre- test and post-test. Learner 07A performed very well in both tests getting the highest score of 90% on post-test. Seventeen of the twenty Group A learners (85%) passed the post-test as compared to thirteen learners (65%) who passed the pre-test. Learners 015A and 016A did not pass both the pre-test and post-test. They had problems of understanding the concepts of addition and subtraction being taught in ChiShona. However all the learners in Group A show a marked improvement in their performance of the post-test as compared to the pre-test.

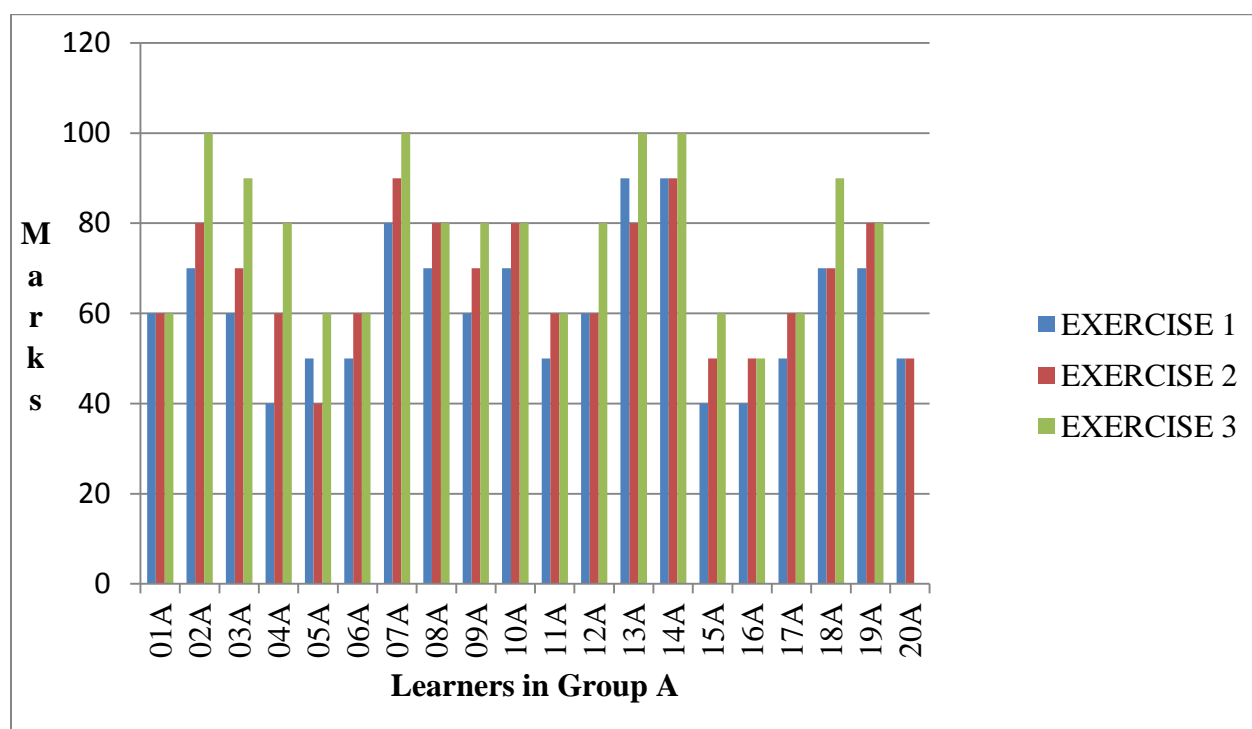
Table 4.5: Results of the exercises given to Group A

LEARNER'S CODE	EXERCISE 1	%	EXERCISE 2	%	EXERCISE 3	%
01A	6	60	6	60	6	60
02A	7	70	8	80	10	100
03A	6	60	8	80	9	90
04A	4	40	6	60	8	80
05A	5	50	4	40	6	60
06A	5	50	6	60	6	60
07A	8	80	9	90	10	100
08A	7	70	8	80	8	80
09A	6	60	7	70	8	80
10A	7	70	8	80	8	80
11A	5	50	6	60	6	60
12A	6	60	6	60	8	80
13A	9	90	8	80	10	100
14A	9	90	9	90	10	100
15A	4	40	5	50	6	60
16A	4	40	5	50	5	50
17A	5	50	6	60	6	60

18A	7	70	7	70	9	90
19A	7	70	8	80	8	80
20A	5	50	5	50	7	70
TOTAL	10	100	10	100	10	100

The information in Table 4.5 above is also illustrated graphically in a bar graph below.

Figure4.5: Bar Chart showing the scores of the exercises given to Grade 4 learners during the practical teaching.



The Statistics from table 4.5 above show the scores of marks for the exercises given to Group A learners during the weeks they were learning Mathematics using ChiShona as a medium of instruction. The exercises were given to check how the learners were mastering the concepts of addition and subtraction being taught in ChiShona. From the scores of marks for the exercises, all the twenty Grade 4 learners in Group A were progressing well. This is evidenced by the

marks of their last exercise in which all the learners scored more than the pass mark of 50%. The use of mother tongue instruction opens communication barriers and allows freedom of interaction among the learners and their teacher. Similarly as illustrated in the bar graph in figure 4.5 above, the learners in Group A did not perform well in Exercise 1 as compared to Exercise 3 where four learners answered everything correctly and all the learners passed the exercise. This was a marked improvement.

4.2.2.2 Responses from the practical teaching experiment of Group B.

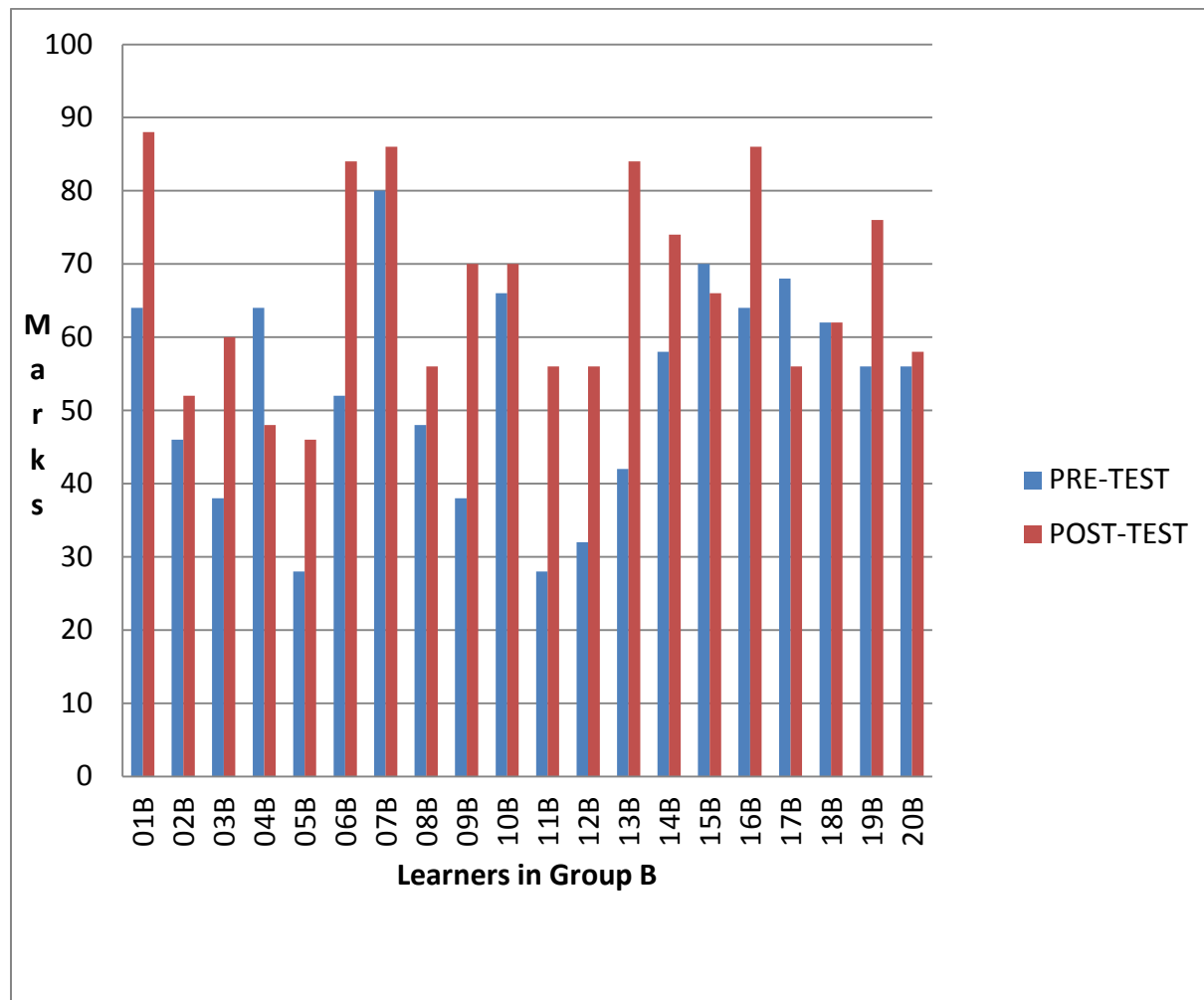
The distribution of marks for the pre-test and post-test of Group B will be discussed and graphically illustrated below figure 4.6.

Table 4.6: Results of the pre-test and post-test given to Group B (N=20)

LEARNER'S CODE	PRE-TEST (%)	POST- TEST (%)
01B	64	88
02B	46	52
03B	38	60
04B	64	48
05B	28	46
06B	52	84
07B	80	86
08B	48	56
09B	38	70
10B	66	70
11B	28	56

12B	32	56
13B	42	84
14B	58	74
15B	70	66
16B	64	86
17B	68	56
18B	62	62
19B	56	76
20B	56	58
TOTAL	50	100
Average Mark	53	66.7

Figure 4.6: Shows the bar chart for Group B marks for the pre-test and the post-test



Group B was taught Mathematics using English as a medium of instruction. The statistics of the Pre-test and post-test shown in table 4.6 indicate that eight learners failed the pre-test, and two learners failed the Post-test. The average group mark was 53 % and 66.7% for the pre-test and post-test respectively. Learner 04B passed the pre-test (64%) and failed the post-test (48%). Learner 05B failed both the pre-test and the post test. Five learners; 01B, 06B, 07B, 13B and 016B scored highly in the post test, each of them getting more than 80%. Learner 18B performed well for both the pre-test and post-test as he scored 62% for both the tests. Learner 07B was an outstanding performer who did very well in pre-test (80%) and post-test (86%).The same statistics as in table 4.6 is represented graphically in figure 4.6 and show clearly from the bars that Group B learners improved their performance from the pre-test to the post-test, with the

exception of learner 04B who did well in the pre-test but failed the post-test thus showing poor performance. Learner 013B showed tremendous improvement from having failed the pre-test (42%) did very well in the post-test (84%). Some learners whose backgrounds encouraged communicating in English even at home had no problems in understanding mathematical concepts being taught in English as a medium of instruction. Learners who had a good background of English did very well and such students have a negative attitude towards the use of ChiShona in their interaction even outside the classroom learning situation. Such learners showed a clear understanding of the concepts being taught in English.

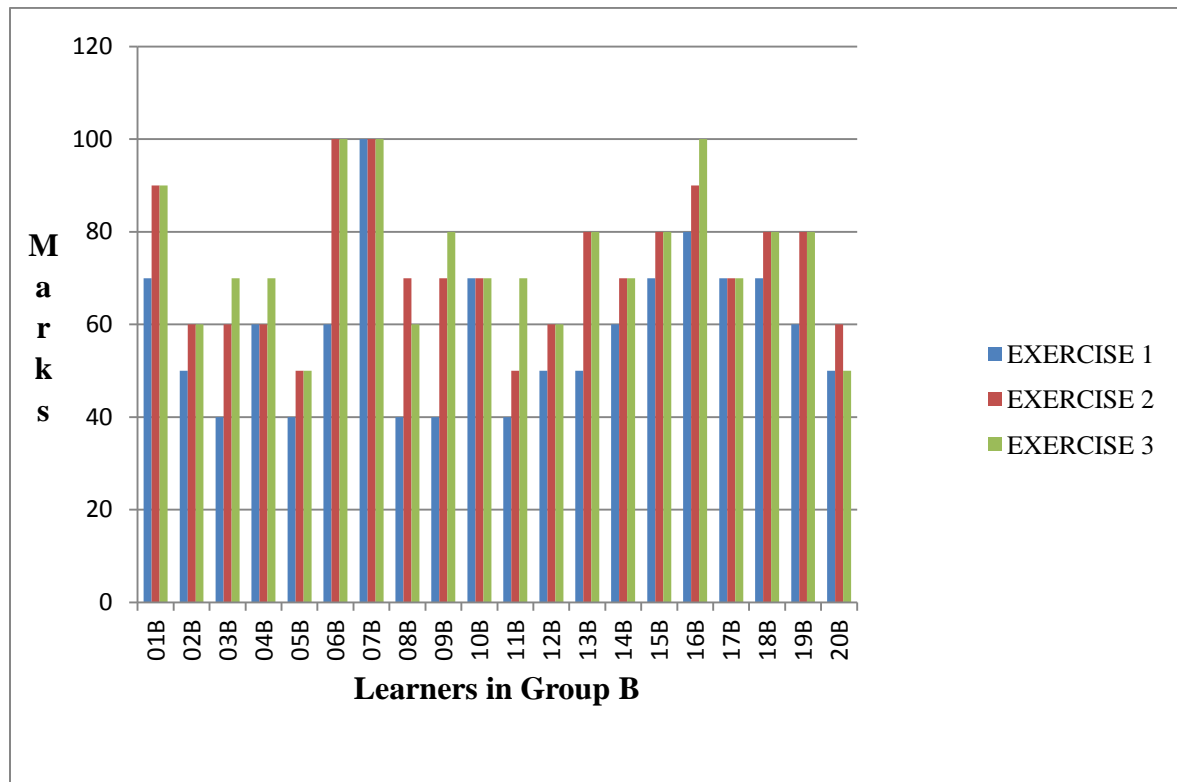
Table 4.7: Results of the exercises given to Group B during the practical teaching. (N=20)

LEARNER'S CODE	EXERCISE 1	%	EXERCISE 2	%	EXERCISE 3	%
01B	7	70	9	90	9	90
02B	5	50	6	60	6	60
03B	4	40	6	60	7	70
04B	6	60	6	60	7	70
05B	4	40	5	50	5	50
06B	6	60	10	100	10	100
07B	10	100	10	100	10	100
08B	4	40	7	70	8	80
09B	4	40	7	70	8	80
10B	7	70	7	70	7	70
11B	4	40	5	50	7	70

12B	5	50	6	60	6	60
13B	5	50	8	80	8	80
14B	6	60	7	70	7	70
15B	7	70	8	80	8	80
16B	8	80	9	90	10	100
17B	7	70	7	70	7	70
18B	7	70	8	80	7	70
19B	6	60	8	80	8	80
20B	5	50	6	60	5	50
TOTAL	10	100	10	100	10	100

The same information in table 4.7above is represented in figure 4.7 below.

Figure 4.7: Bar chart showing the results of the exercises given to Group B during practical teaching.



The marks in table 4.7 above shows how the learners in Group B performed in the three exercises on addition and subtraction given during the practical teaching experiment. All the learners in Group B performed very well and showed an improvement in all the work they were being taught in Mathematics through English as a medium of instruction. Learner 07B was outstanding as she answered all the exercises correctly. In Exercise 1, learners 03B, 05B, 08B and 11B did not score the pass mark of 50% and above but improved gradually in other given exercises. Exercise 3 was well answered by all the learners in Group B. The exercises were given to check how the learners were mastering the concepts of addition and subtraction being taught in English. This information being illustrated graphically in figure 4.7 shows clearly how the learners in Group B performed. Learners 06B and 07B were outstanding in all the exercises given during the practical teaching. Exercises 2 and 3 were correctly answered by all the

learners. The learners showed that they could understand the concepts of addition and subtraction being taught in English. In Exercise 3 eight learners scored more than 80% showing that most of the work given to the learners was understood

4.2.2.4 Comparison of the performance of the groups using group average marks.

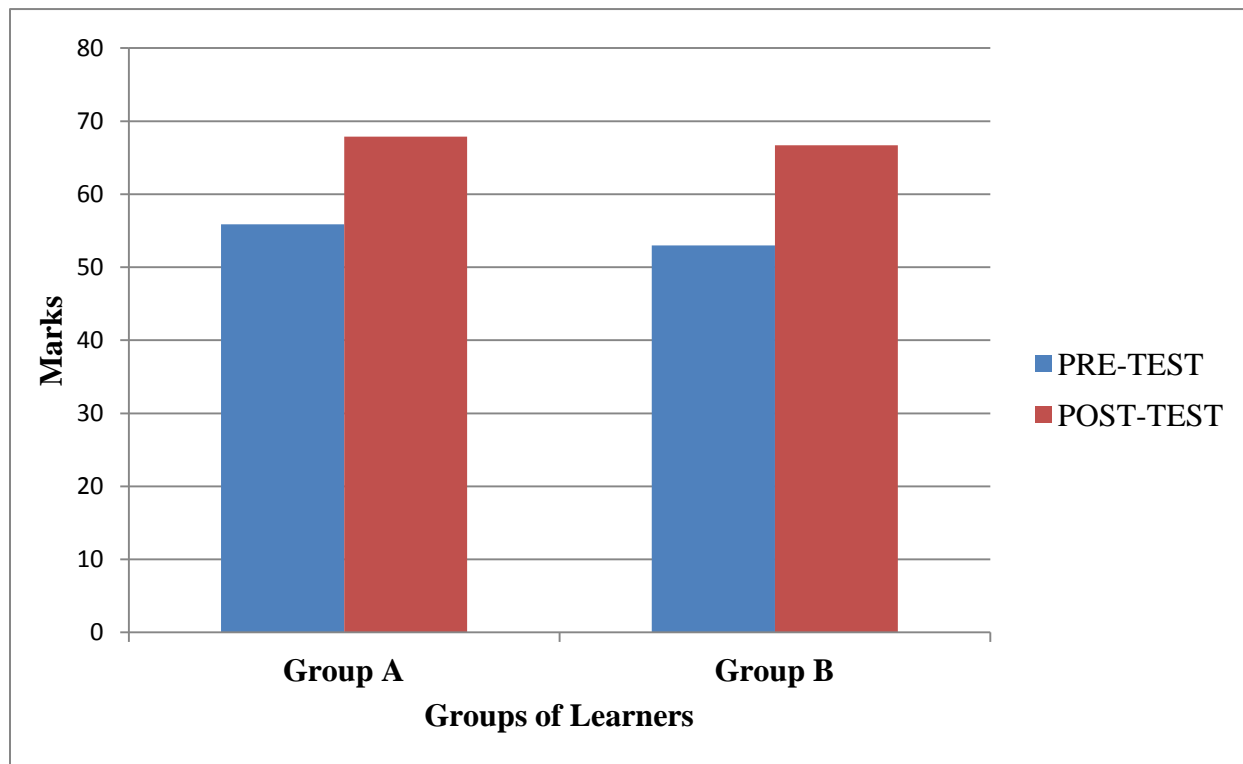
The performance of the learners in Group A and Group B could also be statistically compared through the use of the group average marks in their pre-test and post-test and this is discussed below.

Table 4.8 : Show the average marks for the pre-test and post-test of Group A and Group B

GROUP	PRE-TEST (%)	POST-TEST (%)
Group A	55.9	67.9
Group B	53	66.7

The information in table 4.8 is also graphically illustrated below in figure 4.8.

Figure 4.8 : Shows the bar graph for the average marks for the pre-test and post-test of Group A and Group B



From table 4.8 above, the group average mark for Group A pre-test was 55.9% and for Group B was 53%. The pre-test was given to the groups to test the assumed knowledge of learners and to find a common ground for both groups before the experiment was carried out. After the practical teaching for both groups in which Group A used ChiShona as a medium of instruction in the teaching and learning of Mathematics to a Grade 4 class and Group B used English as a medium of instruction in learning Mathematics, the class averages for the post-test were 67.9% and 66.7% for Group A and Group B respectively. Comparing class averages for the pre-test and post-test, it is clear that both groups performed well and showed an improvement from their pre-test class average to the post-test class average. Group A performed better than Group B in both the given tests. It showed much more improvement in the exercises and tests given, however the marks for Group B were not bad either as they also showed a marked improvement in their performance. The use of the mother tongue instruction (ChiShona) could have impacted positively in the teaching of Mathematics to Grade 4 learners. Similarly as shown in table 4.8

above, figure 4.8 show clearly that both groups performed well and showed an improvement from their pre-test group average to the post-test class average.

The use of ChiShona as a medium of instruction in teaching Mathematics is feasible and the learners could understand the mathematical concept of addition and subtraction in ChiShona without problems. A language (ChiShona) that a child knows effectively should be the language of education and training. The language used for education purposes should be a language capable of opening communication barriers. According to Magwa (2008) if a language creates a host of “misunderstood” then the “barriers” cannot be easily cleared. The use of mother tongue as a medium of instruction ensures that learners are taught in language spoken by a large number of people, of which language is useful in local and national life and the language is familiar to both learners and teachers.

4.2.3 FINDINGS FROM THE QUESTIONNAIRE

4.2.3.1 Background information of the university/college students, parents and teachers/lecturers

Table 4. 9 : Distribution of respondents by gender (N=710)

Category	No. of Respondents	Percentage
Male	356	50,1
Female	354	49,9
Total	710	100

The information concerning the gender composition of the population understudy was important in order to generalise the attitudes or findings across gender lines.

Table 4.10: Distribution of respondents by age (N=710)

Category	No. of Respondents	Percentage (%)
18 – 19years	95	13,4
20 - 25 years	140	19,7
26 – 30 years	250	35,2
31- 40 years	150	21,1
41-50 years	65	9,2
51-65 years	10	1,4
Total	710	100

The age of respondents was intended to measure the spread of attitudes towards the use of ChiShona as a medium of instruction in teaching and learning Mathematics in primary schools. With the development of science and technology the young age groups would be measured to find their attitudes towards the use of indigenous African languages as medium of instruction in science subjects.

Table 4.11: Level of education – College/ University students (N = 200)

Level	Number	Percentage
Secondary	40	20
Tertiary	100	50
University Degree	60	30
Total	200	100

Figures in Table 4.11 above, show that 50% of the respondents were learners with tertiary level of education and 30% of the college /university students were of the university degree level of education. The level of education is important in assessing the attitude towards the use of ChiShona as a medium of instruction in the teaching of Mathematics at primary school level.

Table 4.12: Level of education – teachers/lecturers (N = 260)

Level	Number	Percentage
‘O & A’ level (untrained teachers)	30	11,5
Diploma/Certificate	102	39,2
Bachelors degree	80	30,8
Masters degree	45	17,3
Doctoral degree	3	1,2
Total	260	100

In Table 4.12 above 88.6% of teachers/lecturers were trained at various levels of the teaching profession and 11.5% were untrained teachers who hold ‘O’ and ‘A’ level certificates. 128 attained a degree qualification with 30.8% being holders of Bachelor’s Degrees and 17.3% being holders of Masters Degrees. Three of the teachers/lecturers (1.2%) are holders of Doctoral Degrees. The information represented in Table above show that the respondents were from different levels of the academic and professional hierarchy.

Table 4.13: Level of education – parents (N = 250)

Level	Number	Percentage
Below 'O' Level	40	16
'O' level	90	36
'A' Level	24	9,6
Diploma/Certificate	50	20
Bachelors degree	32	12.8
Masters degree	14	5,6
Doctoral	0	0
Total	250	100%

Most of the parents who participated in this study were literate. 18, 4% of the parents who participated in this study were educated to the degree level, that is, 12.8% of the parents had Bachelor's degree and 5.6% of the parents had Masters degrees but with none having attained a Doctoral Degree. 16% of the parents have obtained qualifications below the 'O' Level certificate and 20% of the parents had attained a diploma/ certificate level of education. The level of education of parents under study shows that all key stakeholders in Zimbabwe's education system were represented in this study.

4.2.3.2 Responses from questionnaire of college/ university students, teachers/lecturers, and parents

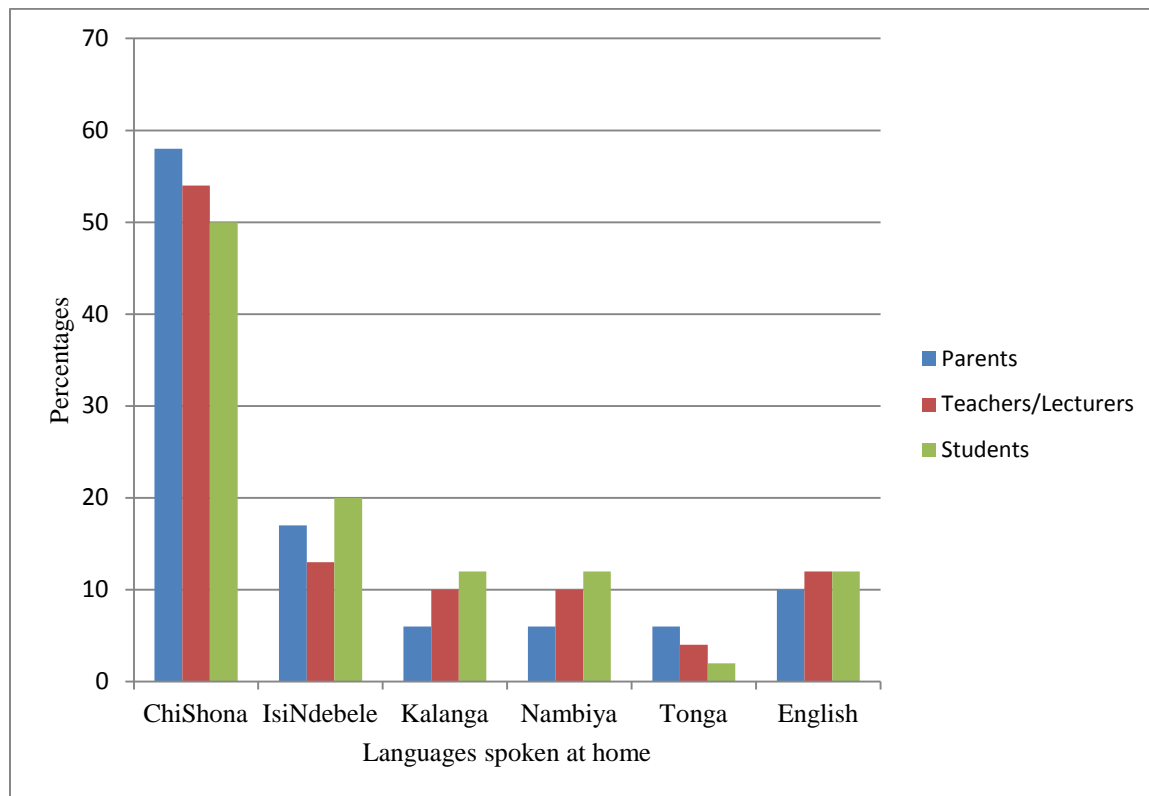
Question 4. The language(s) that respondents speak at home. (N=710)

Table 4.14: Languages that respondent speak at home

Language	Responses				Percentage			
	Parents	Teachers/ lecturers	College/ university Students	Total	Parents	Teachers/ lecturers	College/ university Students	Total
ChiShona	144	140	100	384	58	54	50	54
IsiNdebele	42	35	40	117	17	13	20	16
English	26	30	25	81	10	12	12	11
Kalanga	15	27	25	67	6	10	12	10
Nambiya	14	10	3	27	6	4	2	4
Tonga	9	18	7	34	3	7	4	5
Other	0	0	0	0	0	0	0	0
Total Responses	250	260	200	710	100	100	100	100

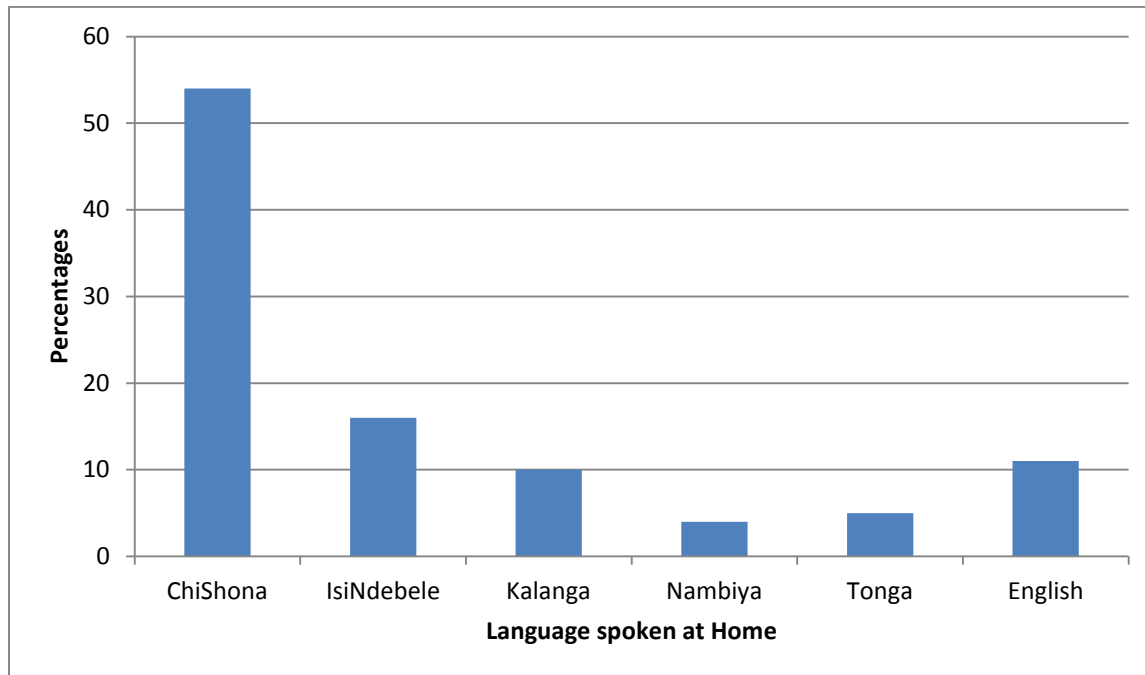
The information in table 4.14 above has been graphically represented in figure 4.9 below. The analysis of this information is discussed below figure 4.9.

Figure 4.9: Bar graph showing the languages which the respondents speak at home.



The question intended to find out the linguistic background of the respondents and the common languages which are spoken at home. Statistics from Table 4.14 show that 54% of the respondents use ChiShona as the language of communication at home in their day to day activities. 16% of the respondents use IsiNdebele as their language at home. English is spoken at home by 11% of the respondents and other languages spoken at home are; Kalanga, Nambiya and Tonga who had 10%, 4% and 5% respectively. Figure 4.9 graphically represents information on the languages which respondents speak at home and it is clear from the bar graph that ChiShona is the most spoken language at home followed by IsiNdebele. English is the third language spoken at home in this study and it is the language used in business, administration and as a language of instruction in schools. It is commonly used by middle class people within the community. The need to use ChiShona as language of instruction in schools can be detected from the information on the bar graph.

Figure 4.10: Total Responses on languages spoken by respondents at home



The total responses of languages being spoken at home as given by the college /university students, teachers/lecturers and parents show clearly from Figure 4.10 that ChiShona has the highest percentage of 54. From the above information there is a strong need to have ChiShona as a language of instruction in subjects being taught in primary schools of Zimbabwe. The use of a common language spoken at home in schools will remove the inferiority complex that is associated with indigenous languages' use in schools.

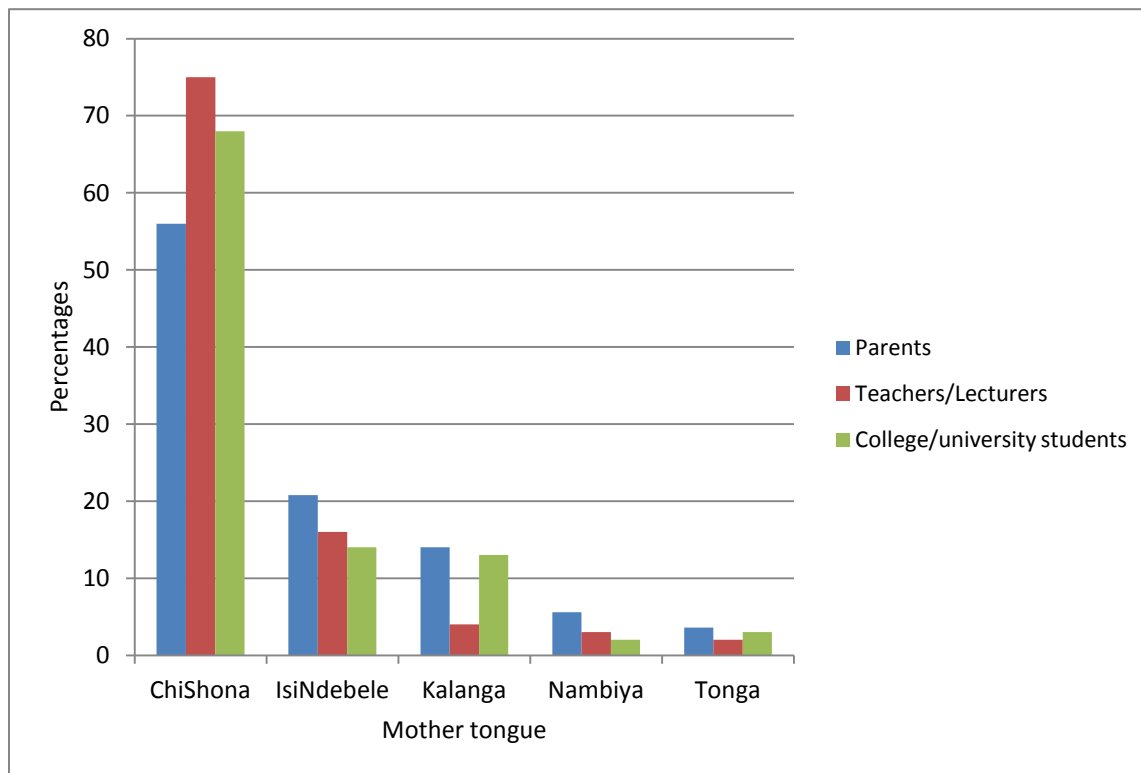
Question 5. What is the name of your mother tongue? (N=710)

Table 4.15: The responses on the mother tongue of respondents

Mother Tongue	Responses				Percentage			
	Parents	Teachers/ Lecturers	College/ university Students	Total	Parents	Teachers/ Lecturers	College/ university Students	Total
ChiShona	140	195	135	470	56	75	68	66
IsiNdebele	52	42	30	124	20.8	16	14	17
Kalanga	35	10	25	70	14	4	13	10
Nambiya	14	8	3	25	5,6	3	2	4
Tonga	9	5	7	21	3.6	2	3	3
Other	0	0	0	0	0	0	0	0
Total Response	250	260	200	710	100	100	100	100

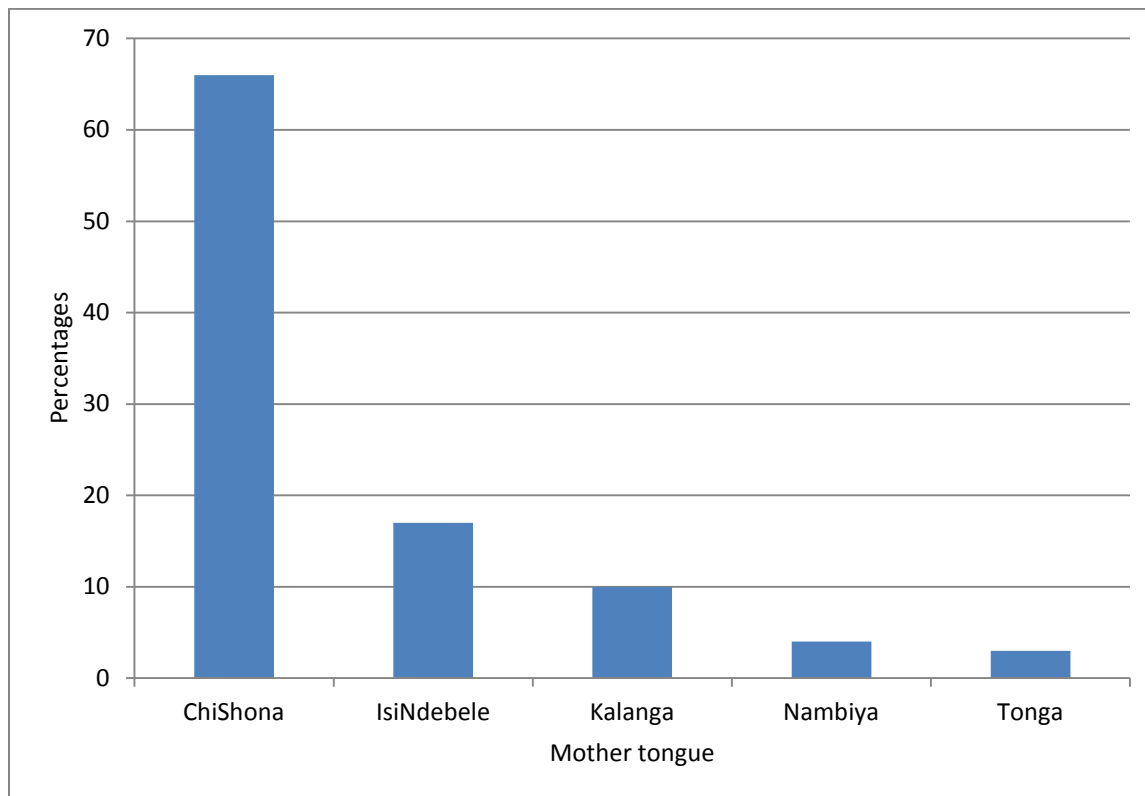
The statistics presented in table 4.15 are also illustrated graphically in figure 4.11 below. Analysis of this information is discussed below the figure.

Figure 4.11: Responses on the mother tongue of the respondents.



Statistics in table 4.15 clearly show that 66% of the respondents who participated in this study use ChiShona as their mother tongue. The parents just like the teachers and college/university students use ChiShona as their mother tongue. From the statistics in the table above ChiShona has the highest percentage of the respondents under this study. Only 17% of the respondents use IsiNdebele as their mother tongue. Nambiya and Tonga have 4% and 3% respondents respectively. The purpose of the question was to establish the languages that are used by the learners when they interact. Similarly figure 4.11 illustrates graphically the same information on the mother tongue of the parents, college/university students and the teachers/lecturers. It is clear from the bar graph that ChiShona as a mother tongue is commonly used by the respondents. In total 66% of the parents, teachers/lecturers and college/university students indicated that ChiShona is their mother tongue. This shows that there is need to use ChiShona as a medium of instruction in the teaching and learning of subjects such as Mathematics at primary level.

Figure 4.12: Total responses on the mother tongue of the respondents



From the indigenous languages indicated in Figure 4.12 ChiShona is the mother tongue that has the highest percentage as compared to other languages. The mother tongue is the medium of instruction that can be used by teachers and learners in learning concepts of different subjects in schools. It enables the learners to relate the concepts being learnt to their immediate environment. Use of the mother tongue ensures creativity and interaction with our environment.

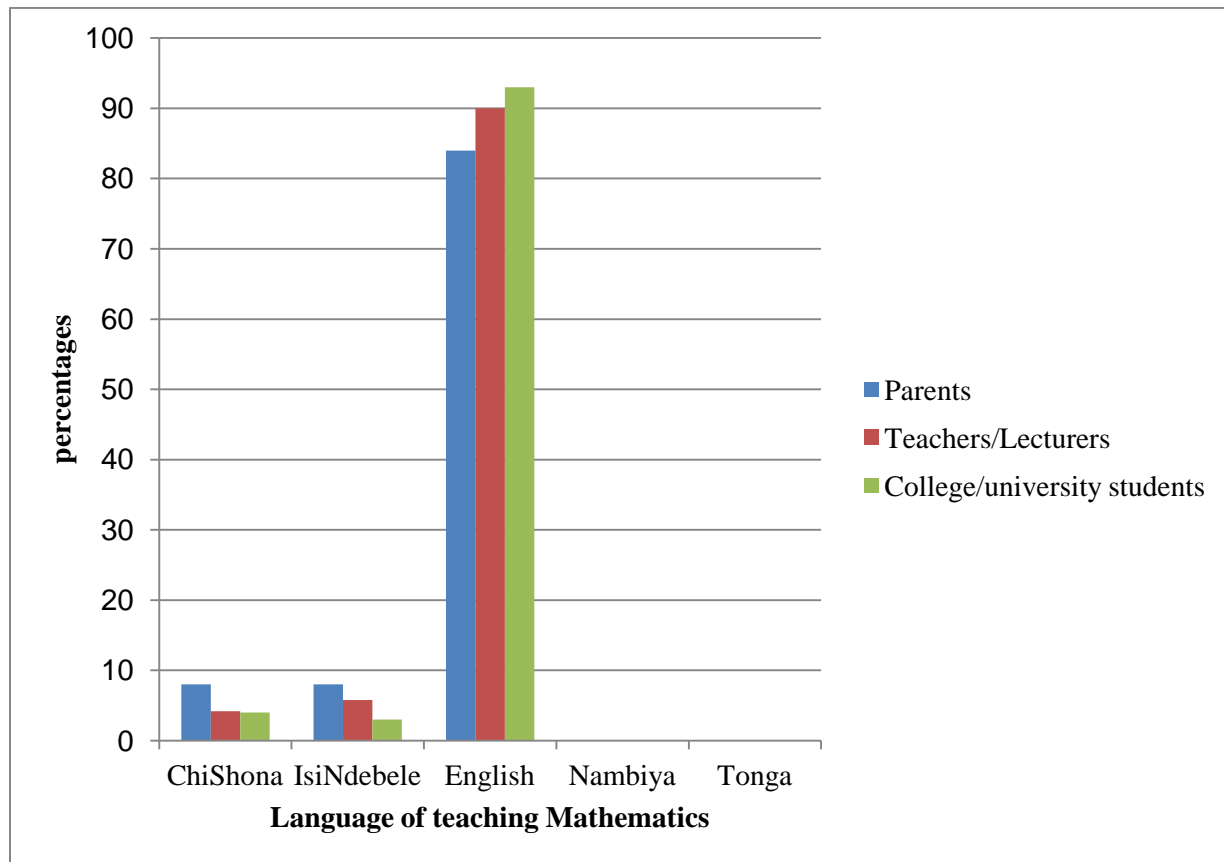
Question 6. What language(s) do teachers use to teach Mathematics as a subject in your school/College/University? (N=710)

Table 4.16: Language(s) which teachers use to teach Mathematics in school/College/University

Language	Responses				Percentage			
	Parents	Teachers /Lecturers	College/ university Students	Total	Parents	Teachers /Lecturers	College/ university Students	Total
ChiShona	20	11	8	39	8	4.2	4	5.5
IsiNdebele	20	15	6	41	8	5.8	3	5.8
English	210	234	186	630	84	90	93	88.7
Kalanga	0	0	0	0	0	0	0	0
Nambiya	0	0	0	0	0	0	0	0
Tonga	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
Total response	250	260	200	710	100	100	100	100

Information in table 4.16 is statistically represented by a bar graph as shown in figure 4.13 below.

Figure 4.13: Language(s) which teachers use to teach Mathematics in school/college/university.

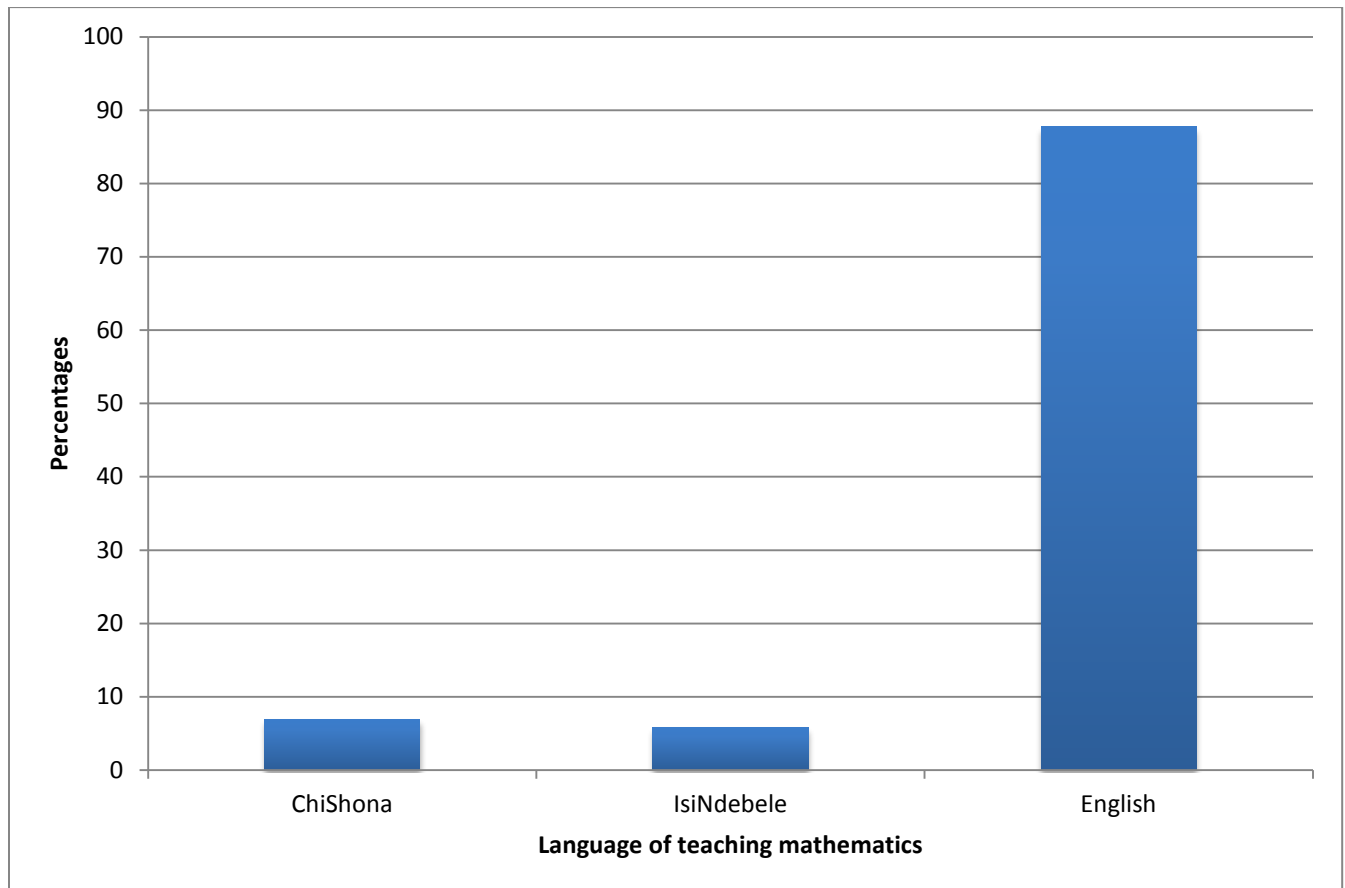


Statistics indicated in Table 4.16 show that English is widely used in schools, colleges and universities as the language of instruction in the teaching of Mathematics. 87.3% of the parents teachers/lecturers and college/university students indicated in their questionnaires that English is used as a medium of instruction in the teaching of Mathematics. The categories of ChiShona and IsiNdebele had 6.9% and 5.8% of the respondents respectively who indicated their use as languages of instruction in schools. The use of ChiShona as media of instruction in schools is informally done in Grade 4 and other upper grades.

Figure 4.13 above graphically indicates that English is the language that is used by teachers as a medium of instruction in teaching Mathematics. The highest percentage (93%) in the English category was from the college/university students and teachers/lecturers were at 90%. The

question intended to find out the common language being used in the teaching of Mathematics in schools.

Figure 4.14: Total responses on Language(s) which teachers use to teach Mathematics in school/college/university.



The total response on which language teachers use when teaching Mathematics show that the majority of the respondents indicated that English is the language used to teach Mathematics in schools/colleges and universities. The purpose of the question was to assess the chances of using ChiShona as a medium of instruction in teaching subjects in primary schools against the background of English as a medium of instruction in Zimbabwean schools.

Question 7. What language(s) do you think should be used as language(s) of instruction in the teaching and learning of Mathematics in primary schools?

Table 4.17: Responses on language(s) which should be used as language(s) of instruction in the teaching and learning of Mathematics in primary schools (N=710)

Language	Responses				Percentage			
	Parents	Teachers /Lecturers	College/ university Students	Total	Parents	Teachers /Lecturers	College/ university Students	Total
English	150	115	140	405	60	44.2	70	57
ChiShona/ IsiNdebele	100	145	60	305	40	55.8	30	43
other	0	0	0	0	0	0	0	0
Total Response	250	260	200	710	100	100	100	100

The information indicated in Table 4.17 can also be represented graphically as shown in figure 4.15. Analysis of this information is discussed below the figure.

Figure 4.15: Bar graph on responses on language(s) which should be used as language(s) of instruction in the teaching and learning of Mathematics in primary schools

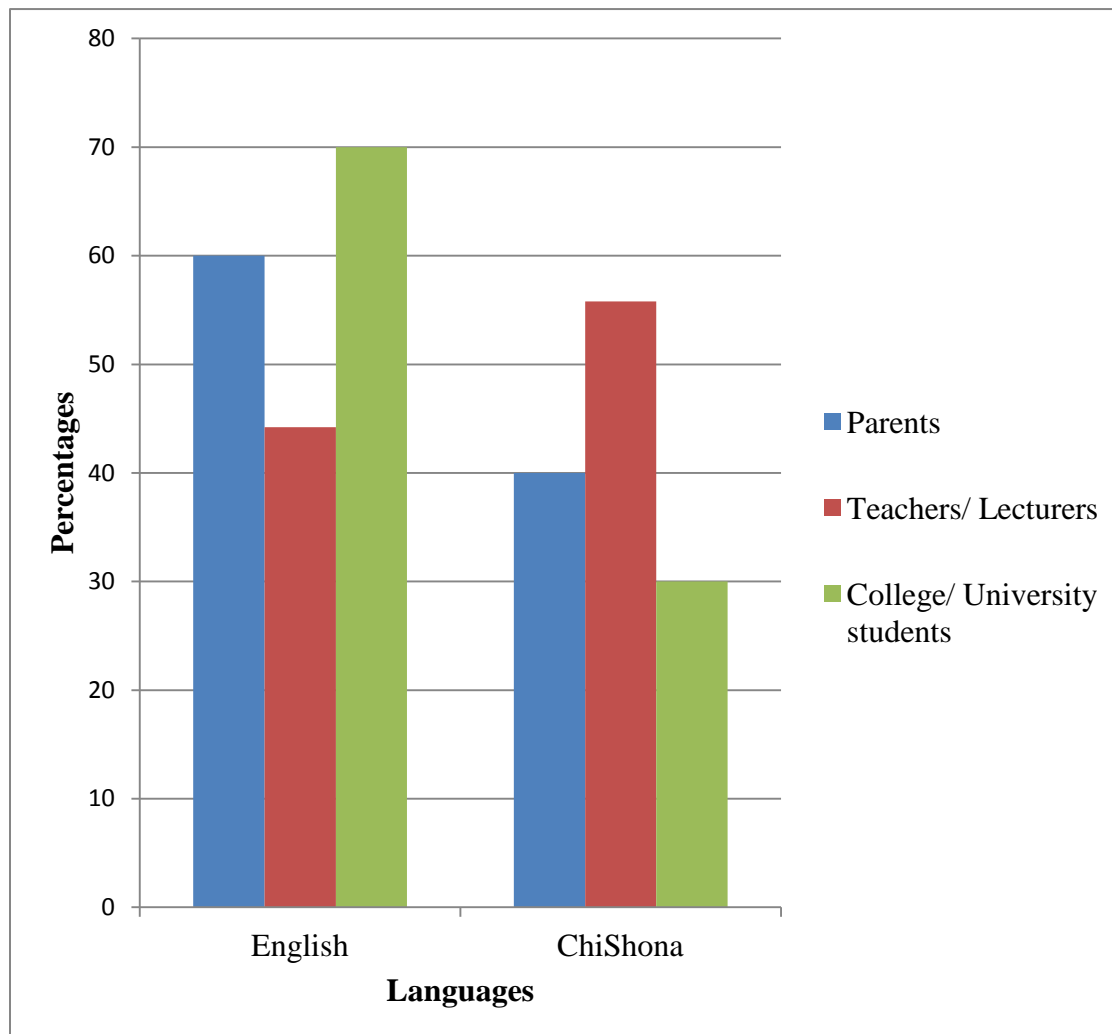
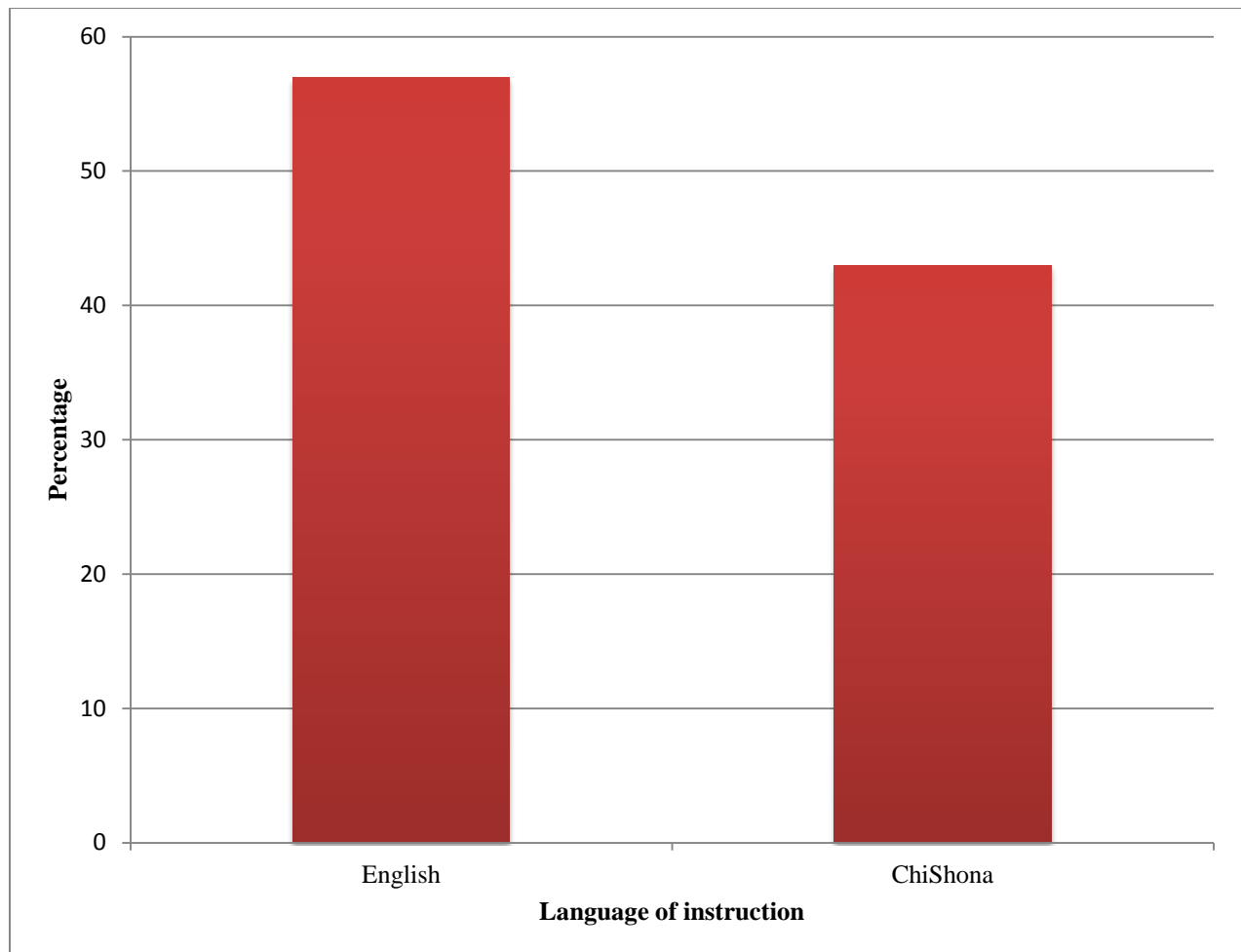


Table 4.17 statistically shows that English language still enjoys the high status as the medium of instruction in the teaching of Mathematics and ChiShona remain with the low status. From the table 4.17, 57% of the respondents indicated on the questionnaire that English should be used as a language of instruction in the teaching of Mathematics. Parents and college/university students in the English category had the highest percentages of 60 and 70 respectively. The teachers/lecturers (55.8%) indicated that ChiShona should be used as medium of instruction in the teaching of Mathematics in schools. The teachers/lecturers are enlightened on the problems students face when

learning Mathematics and their response on the use of ChiShona suggest that there is need to use indigenous languages in the teaching of subjects such as Mathematics in schools of Zimbabwe. From the bar graph in figure 4.15 it is clear that English still prevails over ChiShona as the medium of instruction in the teaching of Mathematics in schools. The question relates to whether ChiShona may be accepted as a language of instruction in the teaching of Mathematics in primary schools.

Figure 4.16: Bar graph on total responses on language(s) which should be used as language(s) of instruction in the teaching and learning of Mathematics in primary schools



The total responses from Figure 4.16 show that English is the language that should be used as a medium of instruction in the teaching of Mathematics in schools. 43% of the respondents preferred ChiShona to be used as a medium of instruction in the teaching of Mathematics.

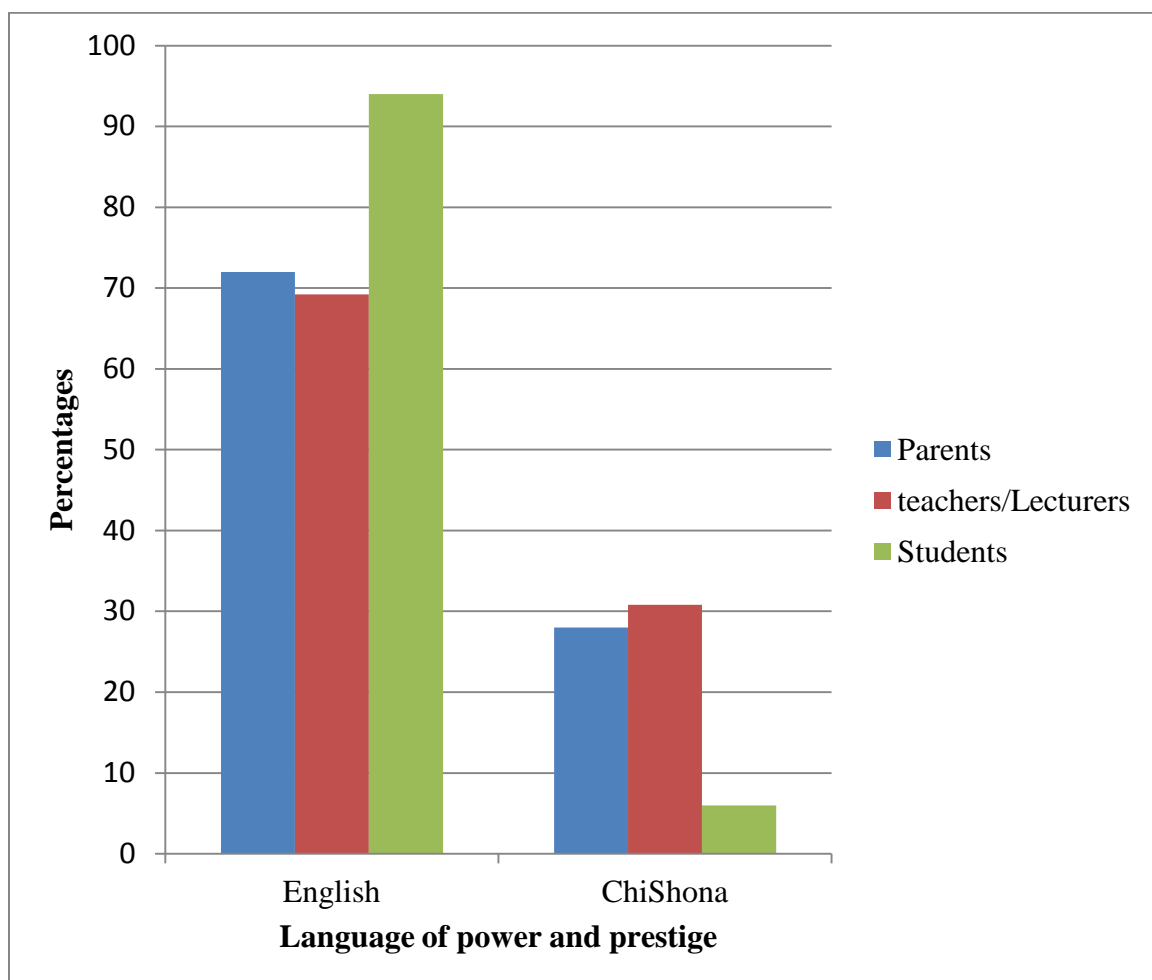
Question 8. Which language(s) is likely to give you power and prestige in Zimbabwe if you speak it?

Table4.18: Responses on which language(s) is likely to give you power and prestige in Zimbabwe (N=710)

Language	Responses				Percentage			
	Parents	Teachers /Lecturers	College/ university Students	Tot	Parents	Teachers /Lecturers	College/ university Students	Tot
English	180	180	188	548	72	69.2	94	77.2
ChiShona/ IsiNdebele	70	80	12	162	28	30.8	6	22.8
Other	0	0	0	0	0	0	0	0
Total Response	250	260	200	710	100	100	100	100

The information in table 4.18 has been graphically presented in a bar graph in figure 4.17 below.

Figure 4.17: Bar graph on which language(s) is likely to give you power and prestige in Zimbabwe (N=710)

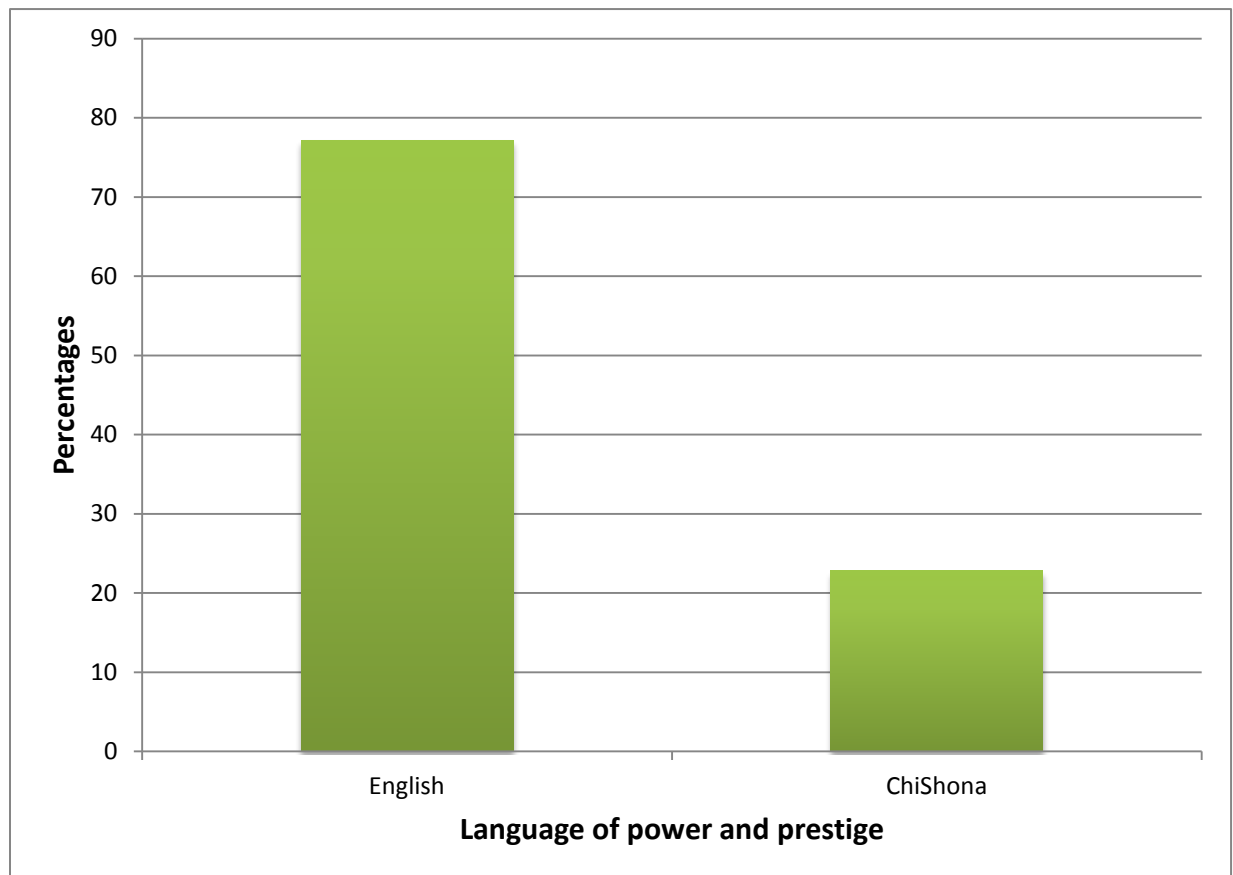


The figures and percentages in table 4.18 above shows that the respondents believe that English is the language that gives power and prestige in Zimbabwe. 77.2% of the teachers/lecturers, parents and college/university learners indicated on the questionnaire that English was the language of power and prestige in Zimbabwe. Students (94%) believe that English is more powerful than ChiShona/IsiNdebele. Parents (72%) believed that English dominates over ChiShona as indigenous language. Teachers and lecturers

expressed the same view that English gives power and prestige as was given by the parents and learners.

Supporting the evidence in table 4.18, the bar graph in figure 1.7 clearly shows that English is the language of power and prestige. It dominates over other African languages as evidenced by the responses of the parents, college/university students, teachers/lecturers. English in Zimbabwe is still the language of business communication. English is the language of preference to the majority of college/university student respondents. This seems to emanate from the notion that a well “schooled” child is one who is conversant and fluent in the English language. The English language seems to be taking on the position of language for prosperity.

Figure 4.18: Total responses on which language(s) is likely to give you power and prestige in Zimbabwe (N=710)



The question intended to find out which language provides power and prestige in Zimbabwe and various responses were recorded but the bottom line of the respondents' views indicated that English is the language of power and prestige. Its diglossic relationship with indigenous African languages shows that it is a high variety enjoying high status. 77.2% of the respondents are of the view that English is the language that gives power and prestige. ChiShona has been reduced to a low status position. This is an indigenous language that is widely spoken in Zimbabwean schools and at home and this gives it a good standing in terms of acceptability and use as a language of instruction in schools.

Reasons why the language(s) is likely to give you power and prestige in Zimbabwe if you speak it?

Respondents	Reasons why English language is likely to give power and prestige in Zimbabwe if one speaks it.
(a) Parents	<ul style="list-style-type: none"> • It is an international language which is understood by different people in different fora. • It is a medium of instruction in schools. • ChiShona is not important in industry, education and commerce and there is no need to speak it.
(b) Teachers/ Lecturers	<ul style="list-style-type: none"> • It is a global language used in different countries as a language of power and prestige. • It is prestigious and has a higher status than ChiShona. • It is a language of administration in Government and local Authority. • English has a wider vocabulary.
(c) College/ University Students	<ul style="list-style-type: none"> • In Zimbabwe one is more marketable in industry and commerce if you are proficient in English. • Without English language at 'O' level you are useless in terms of employment. • African languages such as ChiShona and IsiNdebele are not recognised in business and official business. • English is more developed than African languages in Zimbabwe hence it has various ways of expressing scientific ideas. • English is more challenging than African languages.

Respondents	Reasons why ChiShona/IsiNdebele language is likely to give power and prestige in Zimbabwe if one speaks it.
(a) Parents	<ul style="list-style-type: none"> • It gives you identity • Provides you with the Zimbabwean cultural heritage. • It's powerful in its development.
(b) Teachers/ Lecturers	<ul style="list-style-type: none"> • Culturally it promotes and develops our cultural heritage internationally. • It is being accepted regionally in other countries. • Developed new terminology which can be used in technology. • Is now used on internet on search engines such as Google.
(c) College/ University Students	<ul style="list-style-type: none"> • Can easily be accepted in interactions with your colleagues. • Gives one's identity

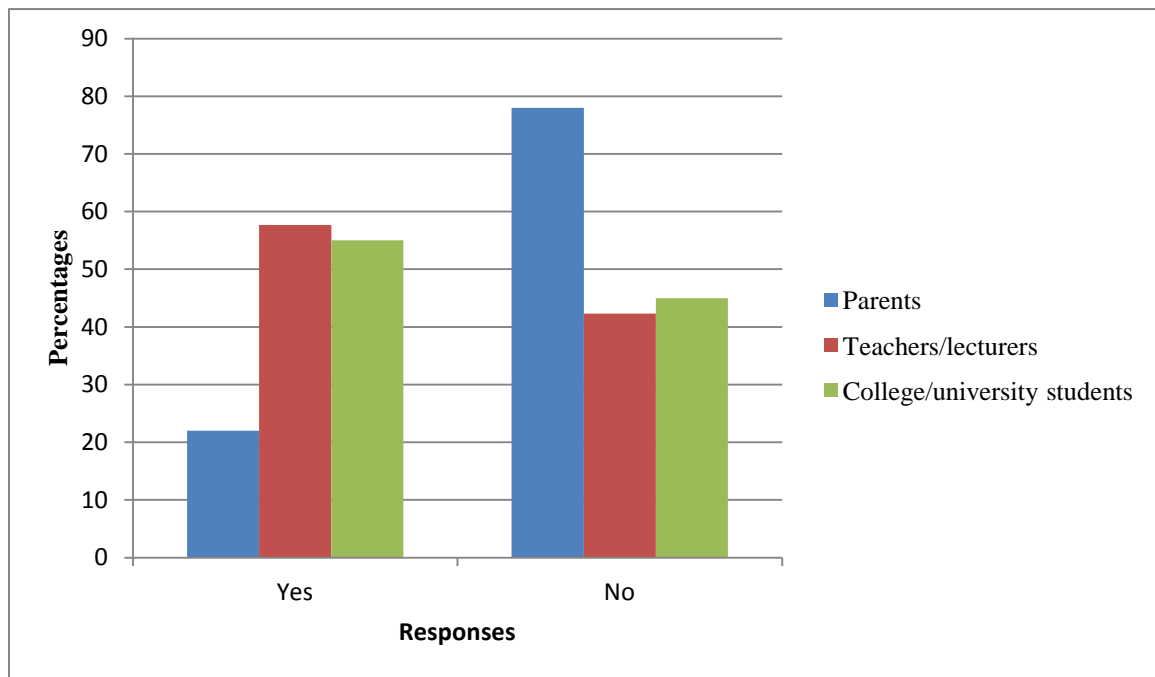
Question 9 Do you think indigenous African languages are positively linked to social, economic and scientific development of a nation?

Table 4.19: Responses on the positive link of indigenous African languages to the social, economic and scientific development of a nation (N=710)

Response	Number of Respondents				Percentage			
	Parents	Teachers /Lecturers	College/ university Students	Total	Parents	Teachers /Lecturers	College/ university Students	Total
Yes	178	200	110	488	71.2	76.9	55	68.7
No	72	60	90	222	28.8	23.1	45	31.3
Total Response	250	260	200	710	100	100	100	100

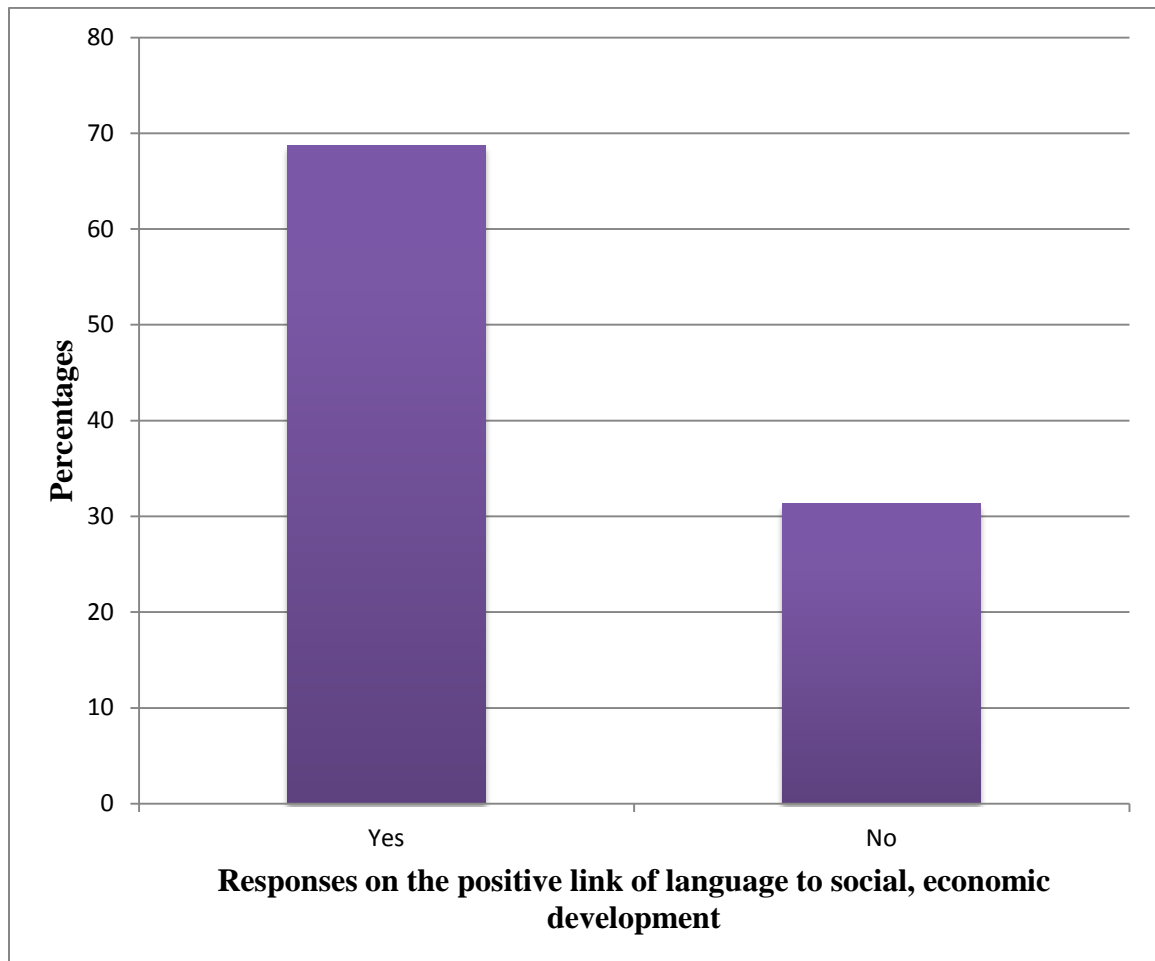
The information in table 4.19 has been graphically presented in figure 4.19 and the analysis of this information is discussed below the figure.

Figure 4.19: Responses on the positive link of indigenous African languages to social, economic and scientific development of a nation? (N=710)



From table 4.19 above, parents (71.2%), teachers /lecturers (76.9%) and college/university students (55%) believe that there is a link of indigenous African languages to the social, economic and scientific development of a nation. However the indigenous African languages are not being recognised or used as vehicles of communication or medium of instruction in schools and in economic development circles of Zimbabwe. Whilst these indigenous African languages have been used in unofficial circles and a lot has been achieved it remains a need that they should be used as languages of instruction in schools.

Figure 4.20: Total responses on the positive link of indigenous African languages to the social, economic and scientific development of a nation (N=710)



The responses as represented by the bar graph in figure 4.20 are in support of the statistical presentation in table 4.19. It is clear that the respondents believe that indigenous African languages have a link with the social, economic development of a country. The respondents' belief gives evidence of the feasibility of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools of Zimbabwe. The respondents (31. 3%) who gave a 'No' response seem not to agree most probably because they were thinking that ChiShona or IsiNdebele as indigenous African language is not capable of moving the realities of development

in areas cited in the question although these languages have the potential to oil the social engine of development.

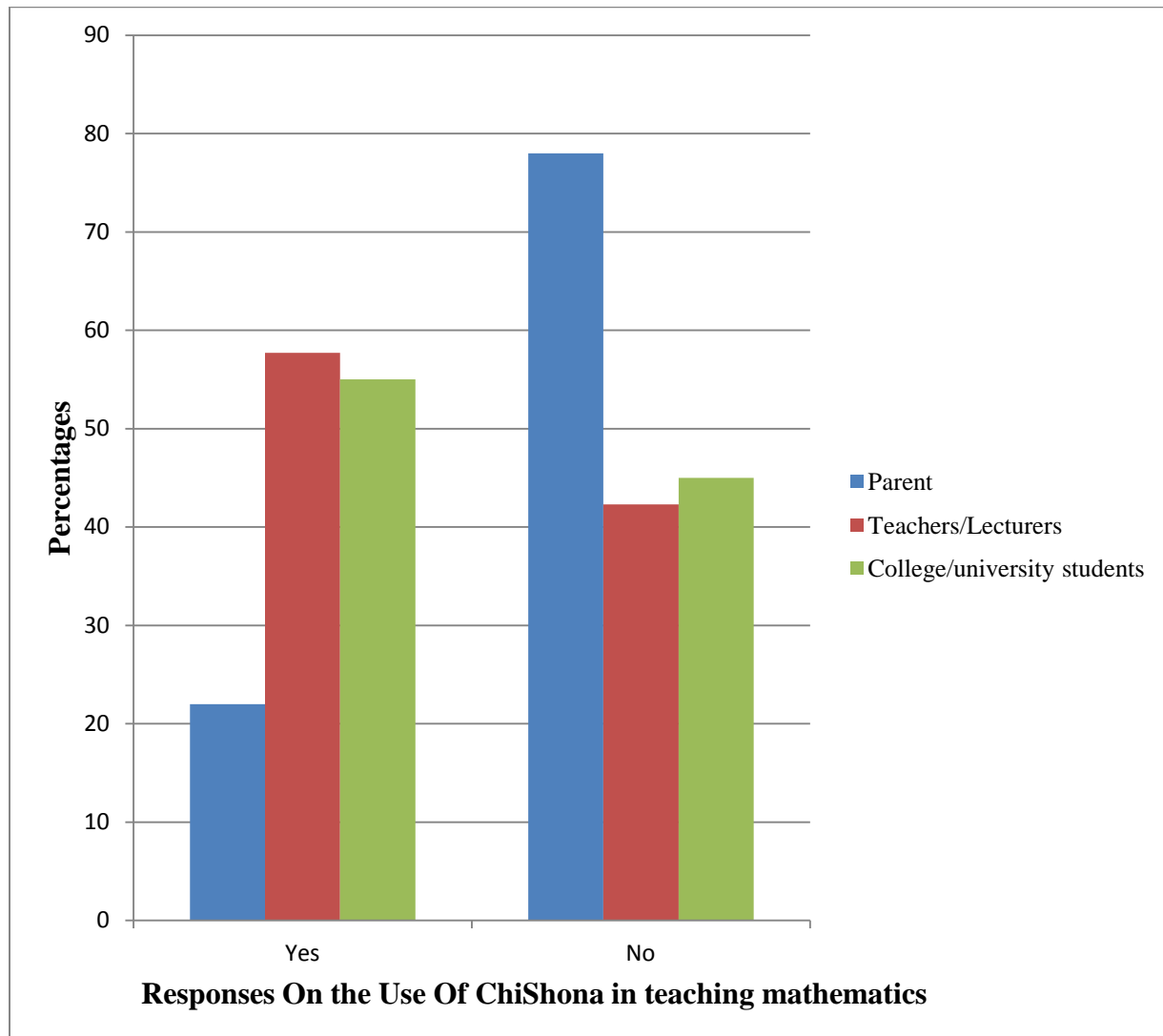
Question 10. Do you think your mother tongue is able to express and explain educational and scientific concepts in the teaching of Mathematics in primary schools?

Table 4.20: Responses on the mother tongue's ability to express and explain educational and scientific concepts in the teaching of Mathematics in primary schools (N=710)

Response	Number of respondents				Percentages			
	Parents	Teachers /Lecturers	College/ university Students	Total	Parents	Teachers /Lecturers	College/ university Students	Total
Yes	55	150	110	315	22	57.7	55	44.4
No	195	110	90	395	78	42.3	45	55.6
Total Response	250	260	200	710	100	100	100	100

The information in table 4.20 has been presented in a bar graph as shown in figure 4.21 below.

Figure 4.21: Bar graph showing the responses on the mother tongue’s ability to express and explain educational and scientific concepts in the teaching of Mathematics in primary schools

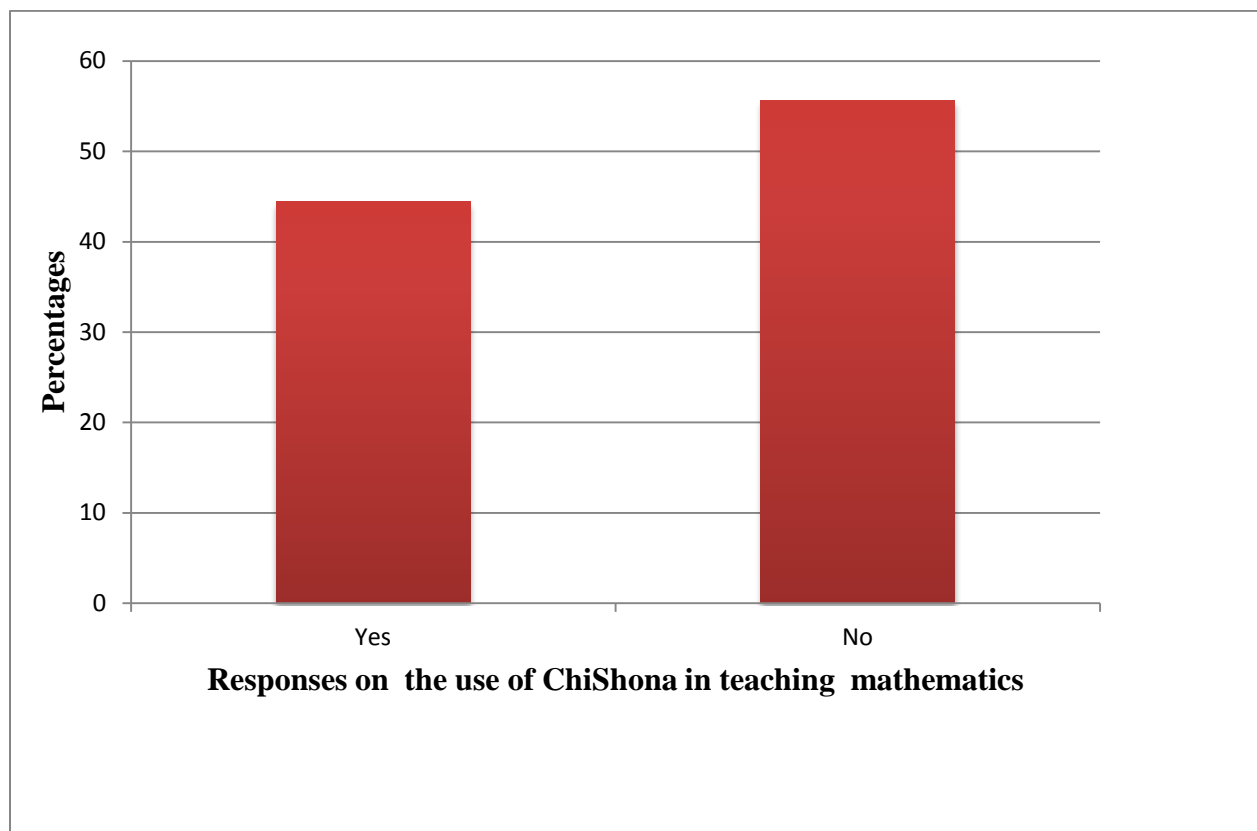


From the statistics in Table 4.20 it is clear that the mother tongue of parents (78%), teachers/lecturers (42.3%) and college/university students (45%) cannot express and explain educational and scientific concepts in the teaching of Mathematics in primary schools. ChiShona as the mother tongue of many respondents lack depth, and is shallow in terms of vocabulary. There are some technical terms which have no equivalents in indigenous languages. No serious

effort has been done to make them relevant in various areas mentioned above. No serious translations have been done and are generally looked down upon.

The graphic representations in figure 4.21 also reveal that the use of ChiShona to explain scientific concepts is still considered inferior. This is despite the fact that in African communities, these languages are spoken at work and in day to day social activities. The category of the 'No' response shows that the parents (78%) believe the mother tongue cannot express and explain educational and scientific concepts. Probably this is because of indoctrination and colonial legacy that indigenous African languages' vocabulary for science and technology is either limited or nonexistent.

Figure 4.22: Total responses on their mother tongue's ability to express and explain educational and scientific concepts in the teaching of Mathematics in primary schools



From the figure 4.22 above, 44.4% of the respondents who agree that their mother tongue can express and explain educational and scientific concepts probably have the idea that if the African languages are developed in terms of their vocabulary and orthography they can be used in science and other areas of learning. 55.6% of the respondents believed that the mother tongue cannot express or explain educational and scientific concepts. The question intended to find out the attitudes of respondents on the feasibility of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools.

Respondents	Reasons why one's mother tongue may not be able to express and explain educational and scientific concepts in the teaching of Mathematics in primary schools
(a) Parents	<ul style="list-style-type: none"> • One's mother tongue is a language that may not accommodate technological terms for scientific development. • Mother tongues can only apply to a particular subject rather than the whole curricula of the schools.
(b) Teachers/ Lecturers	<ul style="list-style-type: none"> • As Zimbabweans our mother tongues are African languages such as ChiShona and IsiNdebele. Such indigenous languages may not be developed enough to meet the challenges of scientific explanations. These languages are not adequately developed in terms of terminology. • African languages are underdeveloped. There is lack of terminology for mathematical concepts. • There are some technical scientific terms which have no equivalents in African languages.
(b) College/ University	<ul style="list-style-type: none"> • Our Mother tongues lack depth. They are shallow in terms of vocabulary and cannot explain fully the mathematical scientific

Students	concepts. These are languages spoken by under developed minority /ethnic groups
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Respondents	Reasons why mother tongue is able to express and explain educational and scientific concepts in the teaching of Mathematics in primary schools
(a) Parents	<ul style="list-style-type: none"> • African languages have the capacity to communicate just like English and hence can explain any scientific concepts provided terms to represent the scientific or mathematical ideas are created.
(b) Teachers/ Lecturers	<ul style="list-style-type: none"> • The use of home language at school is frequent. This explains the nature of transactions that take place with the learners and teachers in schools. Learning of subjects such as mathematics involves the use of vernacular languages for learners to understand better. Culturally it promotes and develops our cultural heritage internationally. • Every language has means and ways of expressing every aspect of its people's experiences. Ordinary people talk about these things everyday which is an indication that the vocabulary or terminology is there for the teaching of mathematics. • Mother tongue has mathematical concepts used on our day to day living such as counting, addition and subtraction which can be done in one's vernacular language.
(c) College/Univers ity Students	<ul style="list-style-type: none"> • African languages are adequate languages of instruction depending on where it is used. • Can easily be accepted in interactions within the learning –teaching situation

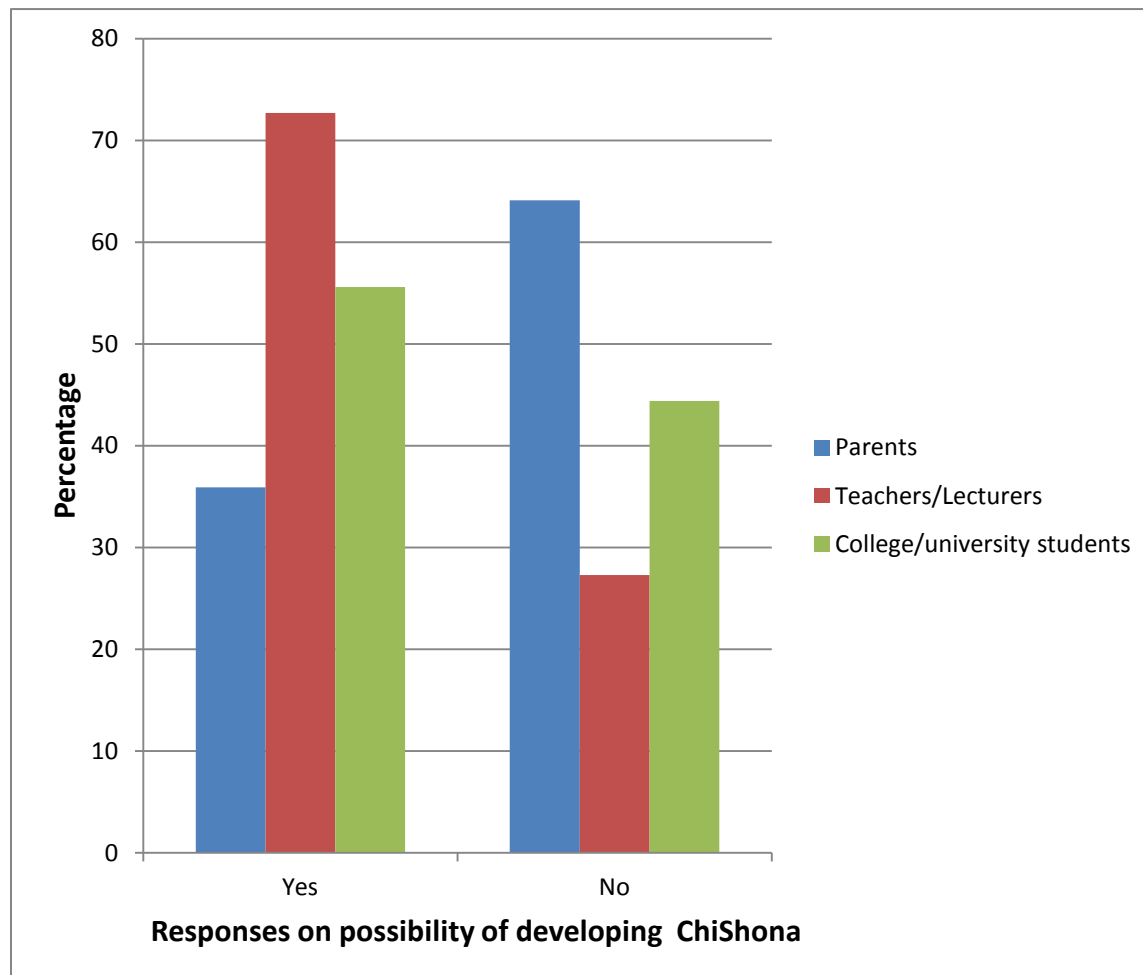
Question 11. If your answer to Question 10 is “No”, do you think it is possible for your mother tongue to be developed to express educational and scientific ideas?

Table 4.21: Responses on one’s mother tongue to be developed to express educational and scientific ideas? (N=395)

Response	Number of respondents				Percentage			
	Parents	Teachers /Lecturers	College/ university Students	Total	Parents	Teachers /Lecturers	College/ university Students	Total
Yes	70	80	50	200	35.9	72.7	55.6	50.6
No	125	30	40	195	64.1	27.3	44.4	49.4
Total	195	110	90	395	100	100	100	100

The information in table 4.21 has been graphically presented in a bar graph as shown figure 4.23 below. The analysis of statics in the table is also given bow figure 2.23

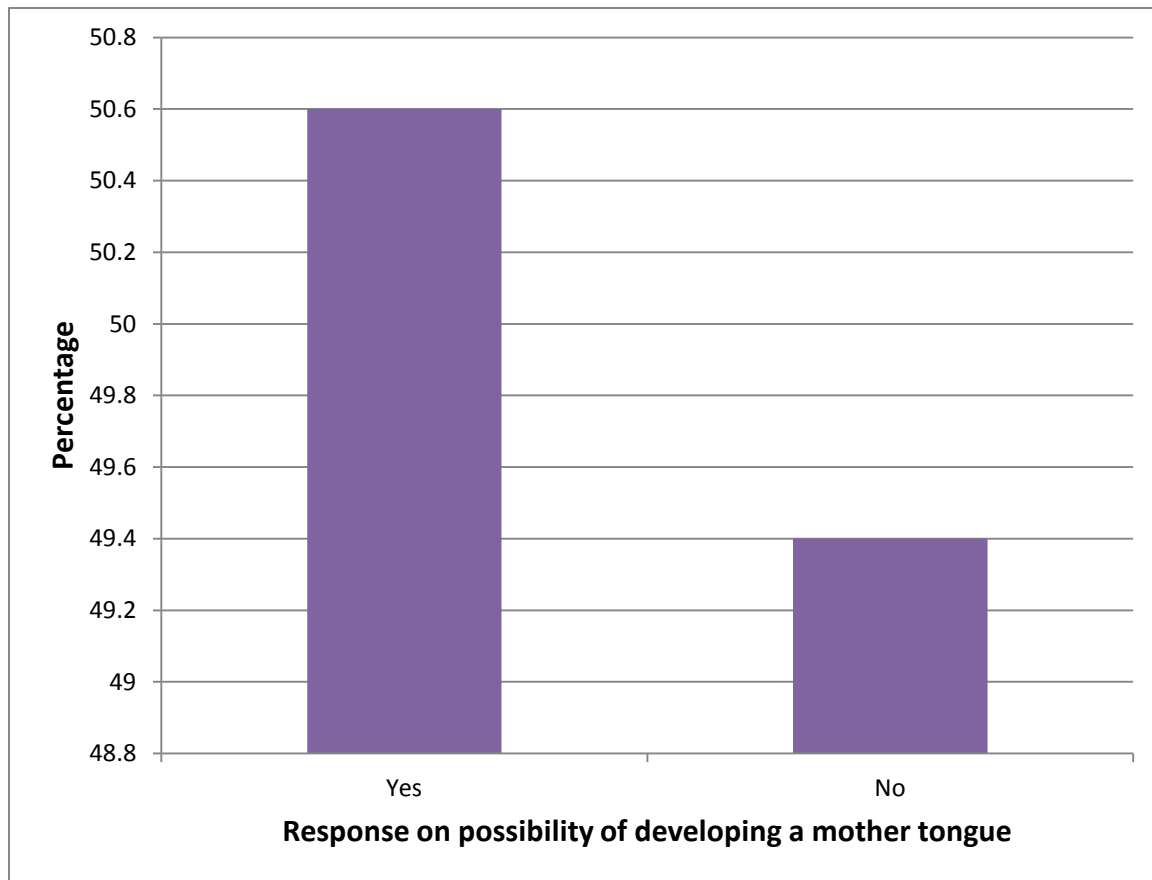
Figure 4.23: Responses on one's mother tongue to be developed to express educational and scientific ideas (N=395)



Apart from having disagreed in Question 10, the respondents (50.6%) still believe that it is possible for one's mother tongue to be developed to express educational and scientific concepts. 49.4% of those in the 'No' category of Question 10 still believe that it's not possible to develop mother tongues to the extent of expressing educational and scientific ideas when teaching mathematics. The question intended to find out whether the respondents still have hope that the mother tongue, which in this case is the indigenous language, can be developed to express and explain scientific concepts being taught in Mathematics. Teachers (72.7%) who are in the 'Yes' category and also classroom practitioners, believed that the indigenous African language can still be developed to teach scientific mathematics. College/university students (55.6%) also support

the views of their teachers/lecturers that indigenous African languages can be developed to teach mathematics even if in Question10 they had disagreed with it.

Figure 4.24: Total Responses on one's mother tongue to be developed to express educational and scientific ideas (N=395)



49.4% of the respondents who constitute the 'No' category still believed that indigenous African languages cannot be developed to teach Mathematics in primary schools. Probably they feel that these languages are shallow in terms of vocabulary and cannot explain fully the mathematical scientific concepts. 50.6% of the respondents still believe that it is possible for one's mother tongue to be developed to express educational and scientific concepts.

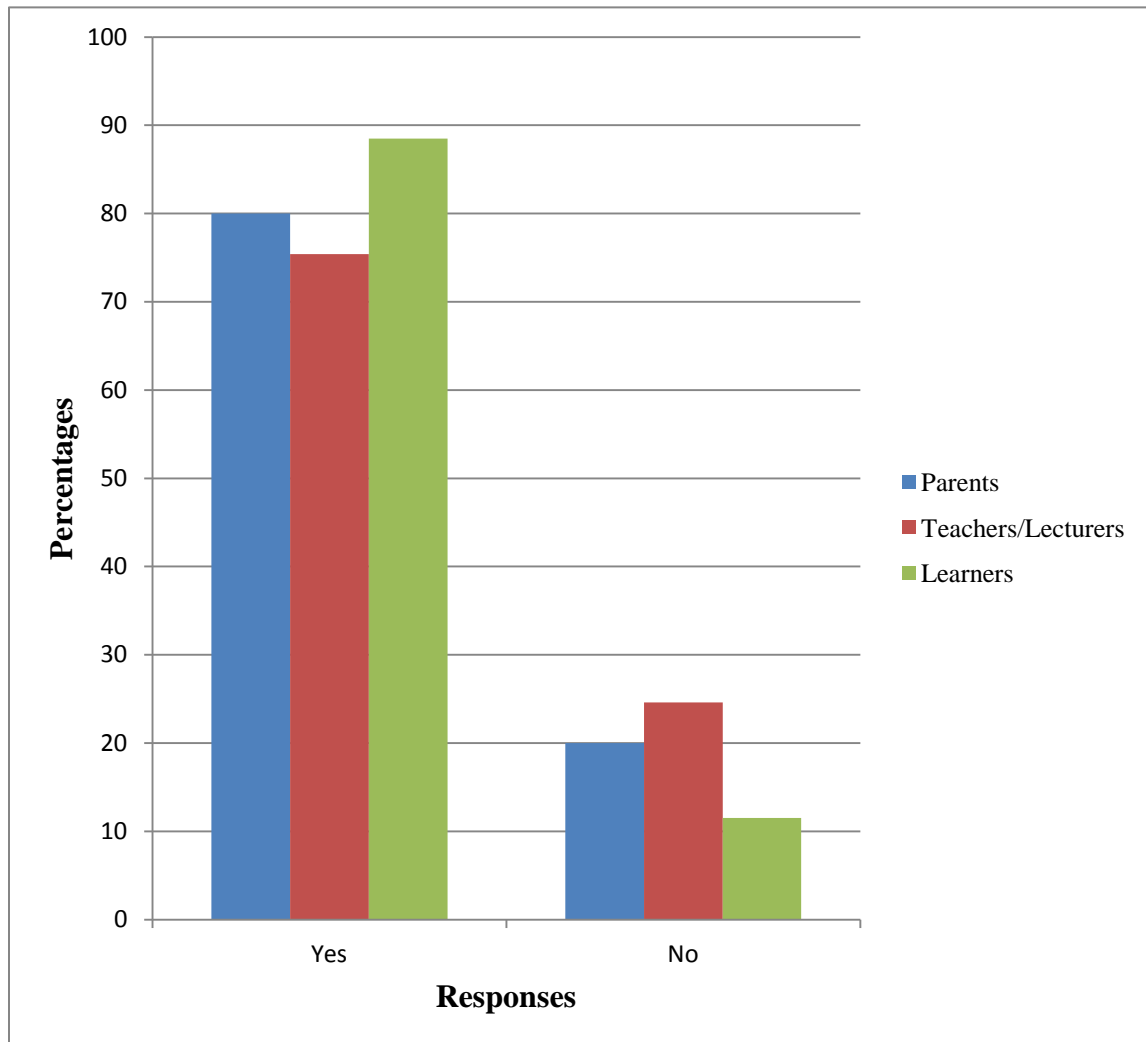
Question 12. Would you be happy if all subjects from primary to university level were studied using indigenous African African language(s) as a medium of instruction?

Table 4.22: Responses on whether all subjects from primary to university level were studied using indigenous African African language(s) as a medium of instruction (N=710)

Response	Number of Respondents				Percentages			
	Parents	Teachers /Lecturers	College/ university Students	Total	Parents	Teachers /Lecturers	College/ university Students	Total
Yes	200	196	177	573	80	75.4	88.5	80.7
No	50	64	23	137	20	24.6	11.5	19.3
Total	250	260	200	710	100	100	100	100

Statistics presented in table 4.22 above have been graphically presented in figure 4.25 below and the analysis is discussed below the figure.

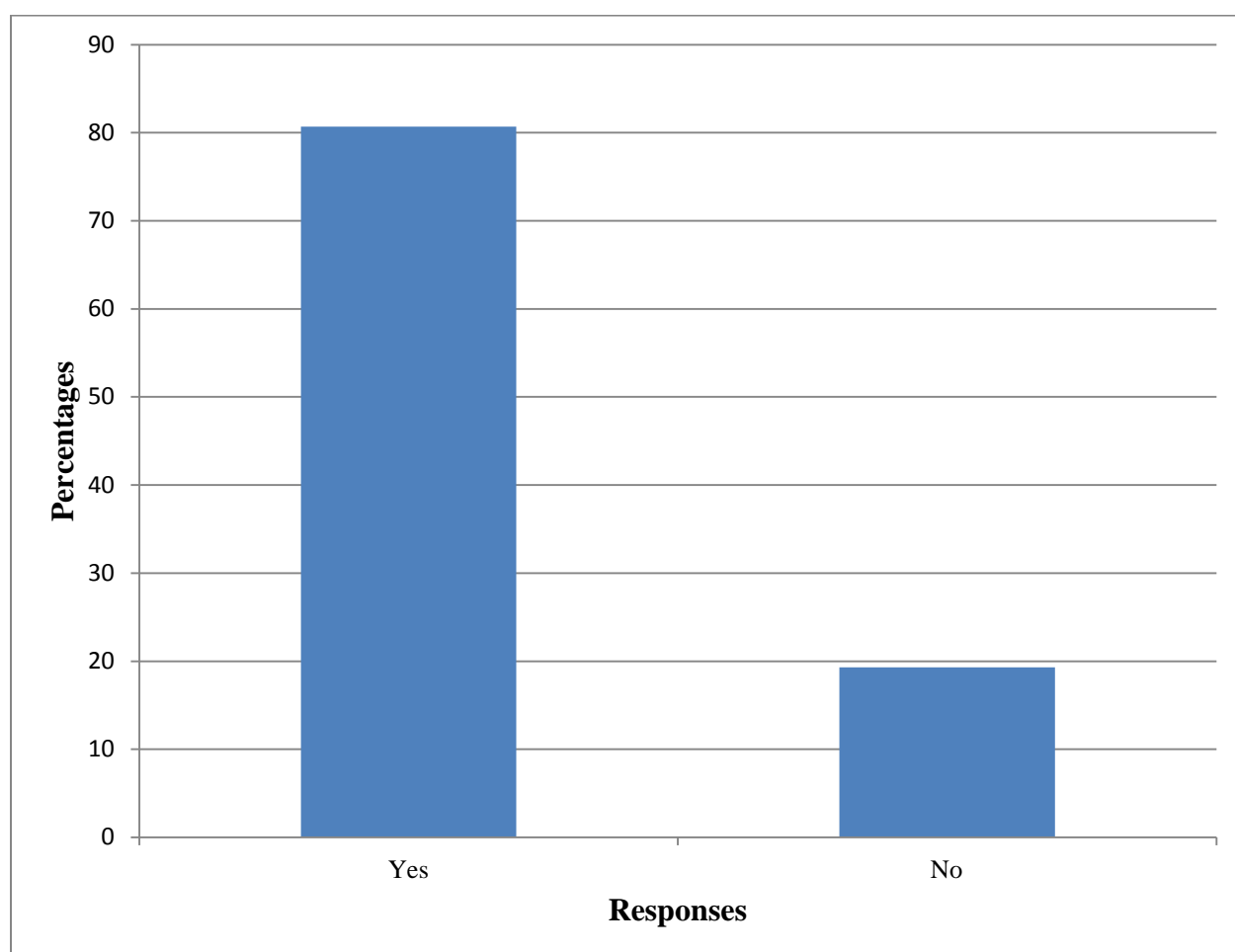
Table 4.25: Responses on whether all subjects from primary to university level were studied using indigenous African language(s) as a medium of instruction (N=710)



80.7% of respondents conceded that they are happy if all subjects from primary to university level were studied using indigenous African language(s) as a medium of instruction. The highest percentage of 88.5 in the 'Yes' category was from the college/university students themselves. The parents (80%) in the 'Yes' category indicated on the questionnaire that they are happy if all subjects from primary to university level were taught using indigenous African languages. This is a positive attitude towards the use of indigenous African languages as languages of instruction in schools.

This is contrary to their attitude in Question 10 where the respondents felt that indigenous African languages could not be developed to teach scientific concepts in schools. However the above information on the Bar graph in figure 4.25 indicates that it is possible to develop ChiShona to the heights of international communication if its speakers are positive on its uses as language of instruction in schools.

Table 4.26: Total responses on whether all subjects from primary to university level were studied using indigenous African language(s) as a medium of instruction (N=710)



The total responses indicate that (80.7%) of the respondents are happy if all the subjects are taught in indigenous African languages from primary to university. 19.3% of the respondents are not happy.

Respondents	Reasons why respondents are happy if all subjects from primary to university level were studied using indigenous language(s) as a medium of instruction.
(a)Parents	<ul style="list-style-type: none"> • Use of indigenous languages will make you appear knowledgeable and intelligent. • Indigenous languages may accommodate technological terms for subjects in schools, colleges and universities • Indigenous languages are adequate languages of instruction depending on where it is used
(b)Teachers/ Lecturers	<ul style="list-style-type: none"> • If other countries like Tanzania, Botswana, Britain and Germany just to mention a few are doing it then we should also do it. • It ensures creativity and interaction with our environment. • African languages can be used in any situation. They are being used in domains such as legislature, school instruction, business and other domains. They are used as media of instruction in primary schools. • This is a better way of making sure that the indigenous languages do not die. • Concepts will be easier to understand if the language used at home becomes the language of instruction at school. • Use of indigenous languages in education will promote African culture in Zimbabwe. • Africans should be proud of their languages. • Learners will find it easier to learn in their mother tongues.
(c) College/Univ ersity students	<ul style="list-style-type: none"> • They will promote our national interests and development • They will not have any geographical limitations. • Can easily be accepted in interactions within the learning –teaching

	<p>situation</p> <ul style="list-style-type: none"> • Use in education may lead to the promotion or better status for African languages.
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Respondents	Reasons why respondents are not happy if all subjects from primary to university level were studied using indigenous language(s) as a medium of instruction.
(a) Parents	<ul style="list-style-type: none"> • Indigenous languages are underdeveloped. • They have limited terminology and hence cannot be used in science subjects. • The vocabulary for science subjects is either limited or nonexistent. •
(b) Teachers/ Lecturers	<ul style="list-style-type: none"> • Use of indigenous languages would create communication problems between Zimbabwe and other nations on the African continent and beyond. • Indigenous languages offer limited vocabulary to scientific and educational concepts. • Many of these languages have not been developed to meet educational challenges. • Use of African languages reduces the marketability of university graduates. • English is a world language that is internationally recognized.
(c) College/University students	<ul style="list-style-type: none"> • Indigenous languages are not economically viable and are not languages of international communications • English language is the best medium of instruction in all the subjects than indigenous languages because it allows one to communicate with

	billions of people all over the world.
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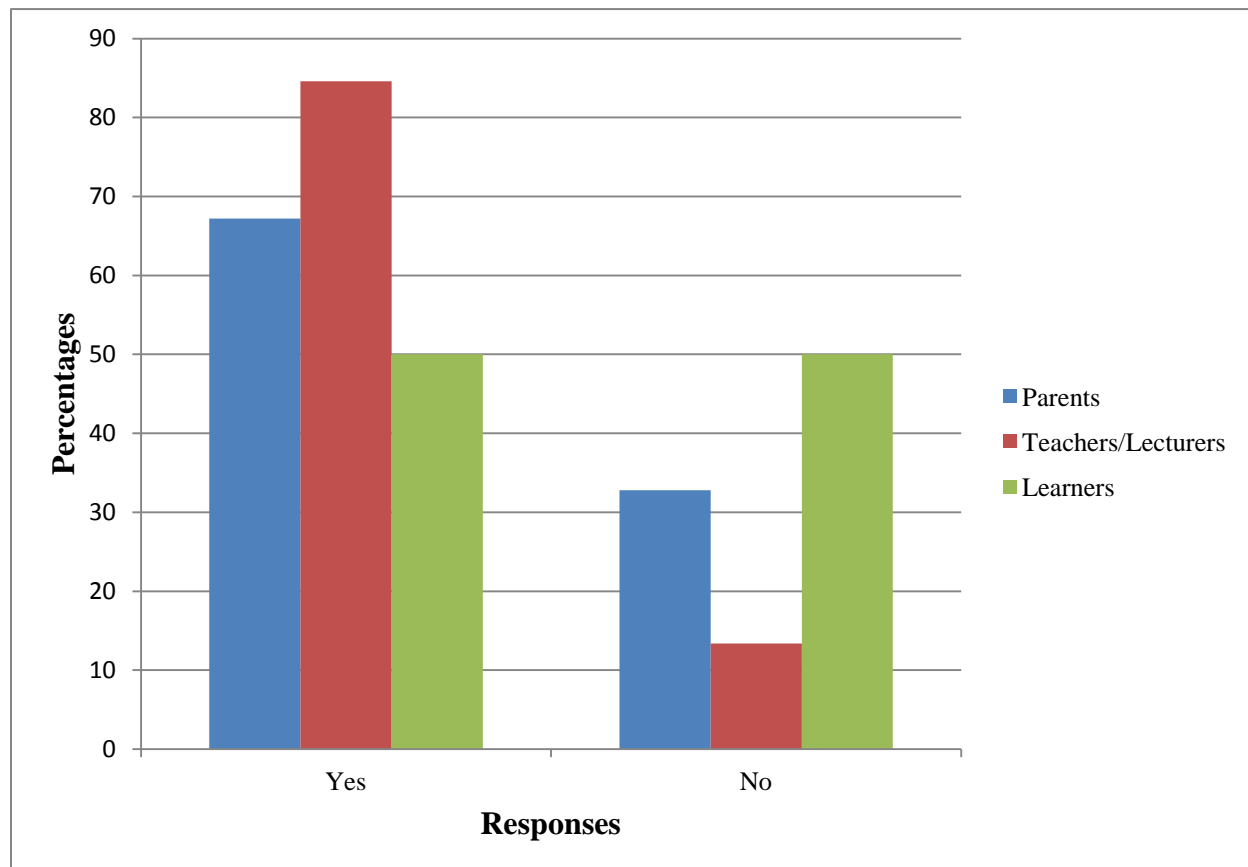
Question 13. Do you think learning would be easier if all the subjects were taught in ChiShona as a medium of instruction?

Table 4.23: Responses on whether it will be easy to learn if all subjects were taught in ChiShona as a medium of instruction (N=710)

Response	Number of Respondents				Percentages			
	Parents	Teachers /Lecturers	College/ university Students	Total	Parents	Teachers /Lecturers	College/ university Students	Total
Yes	168	220	100	488	67.2	84.6	50	68.7
No	82	40	100	222	32.8	13.4	50	31.3
Total Response	250	260	200	710	100	100	100	100

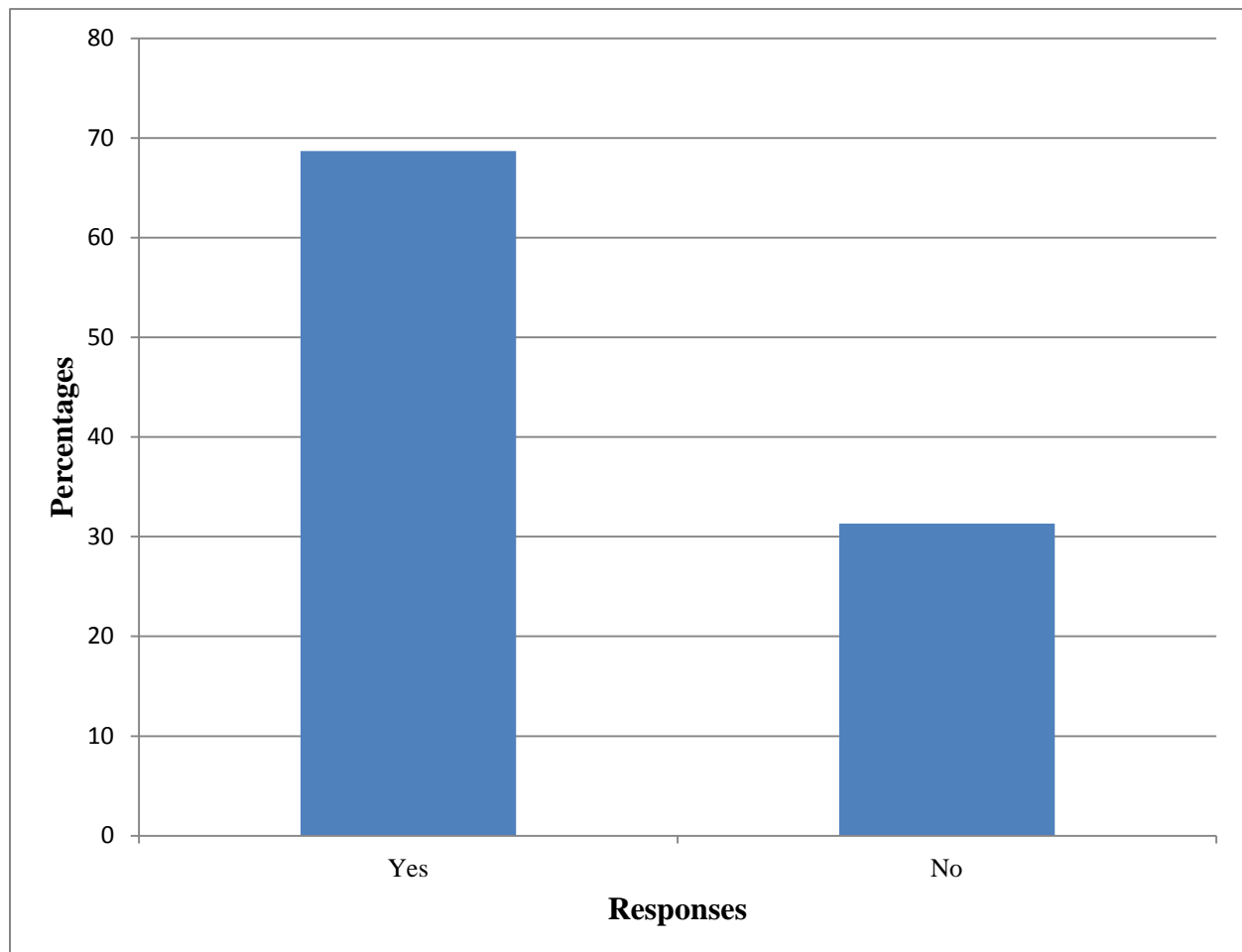
The information in table 4.23 has been graphically presented in a bar graph in figure 4.27 below.

Figure 4.27: Responses on whether it will be easy to learn if all subjects were taught in ChiShona as a medium of instruction (N=710)



From the statistics in table 4.23, the 'Yes' category shows that the teachers/lecturers had the highest percentage of 88.4. 50% of the college/university students indicated on the questionnaire that it will be easy for the learners if they were taught in ChiShona as a medium of instruction. ChiShona is the mother tongue of the majority of the respondents and is widely spoken by people of Zimbabwe. Learning one's subjects at school and using the mother tongue as the language of instruction will enable the learners to understand the concepts. This question enquired whether learning would be easy if all subjects are taught in ChiShona. This is one of the contingency questions that gave respondents room to explain how they view the use of indigenous language when conveying concepts in a teaching learning situation.

Figure 4.28: Total Responses on whether it will be easy if all subjects were taught in ChiShona as a medium of instruction (N=710)



68.7% of the respondents believe that it will be easy to learn if all subjects were taught in ChiShona as a medium of instruction. 31.3% of the respondents indicated on the questionnaire that it will be not easy if all subjects were taught in ChiShona probably they feared that the use of ChiShona as a language of instruction will have negative societal effects which are likely to degenerate into tribalism because Zimbabwe is a multilingual nation with more than ten indigenous languages.

Respondents	Reasons why respondents would think that it will be easy to learn using ChiShona as a medium of instruction.
(a) Parents	<ul style="list-style-type: none"> • Use of ChiShona as a medium of instruction will make the learners appear knowledgeable. • If well developed ChiShona may accommodate technological terms for subjects in schools, colleges and universities
(b) Teachers/ Lecturers	<ul style="list-style-type: none"> • ChiShona has been used in domains such as legislature, school instruction, business and other domains hence it's easy to use it as a language of instruction in schools. • Learning will be easier to understand if the language used at home becomes the language of instruction at school. • Use of ChiShona in education will promote African culture in Zimbabwe. • Learners will find it easier to learn in their mother tongues.
(c) College/University students	<ul style="list-style-type: none"> • ChiShona will promote our national interests and development • We will not have any geographical limitations. • Use in education may lead to the promotion or better status for African languages.

Respondents	Reasons why respondents think that it will not be easy to learn using ChiShona as a medium of instruction.
(a) Parents	<ul style="list-style-type: none"> • Many of these languages have not been developed to meet educational challenges. • Use of African languages reduces the marketability of university graduates.

(b) Teachers/ Lecturers	<ul style="list-style-type: none"> • Use of ChiShona would create learning problems as it has limited terminology • ChiShona offers limited vocabulary to scientific and educational concepts. • Instruction in ChiShona will only benefit speakers of that language variety at the expense of the wider African community. • Science subjects will be negatively affected since it is difficult to express scientific knowledge using ChiShona. • African communities will be isolated and excluded from the global village, which communicates mainly in internationally recognized languages such as English.
(c) College/University students	<ul style="list-style-type: none"> • They have limited terminology and hence cannot be used in science subjects. • The vocabulary for science subjects is either limited or nonexistent in ChiShona.

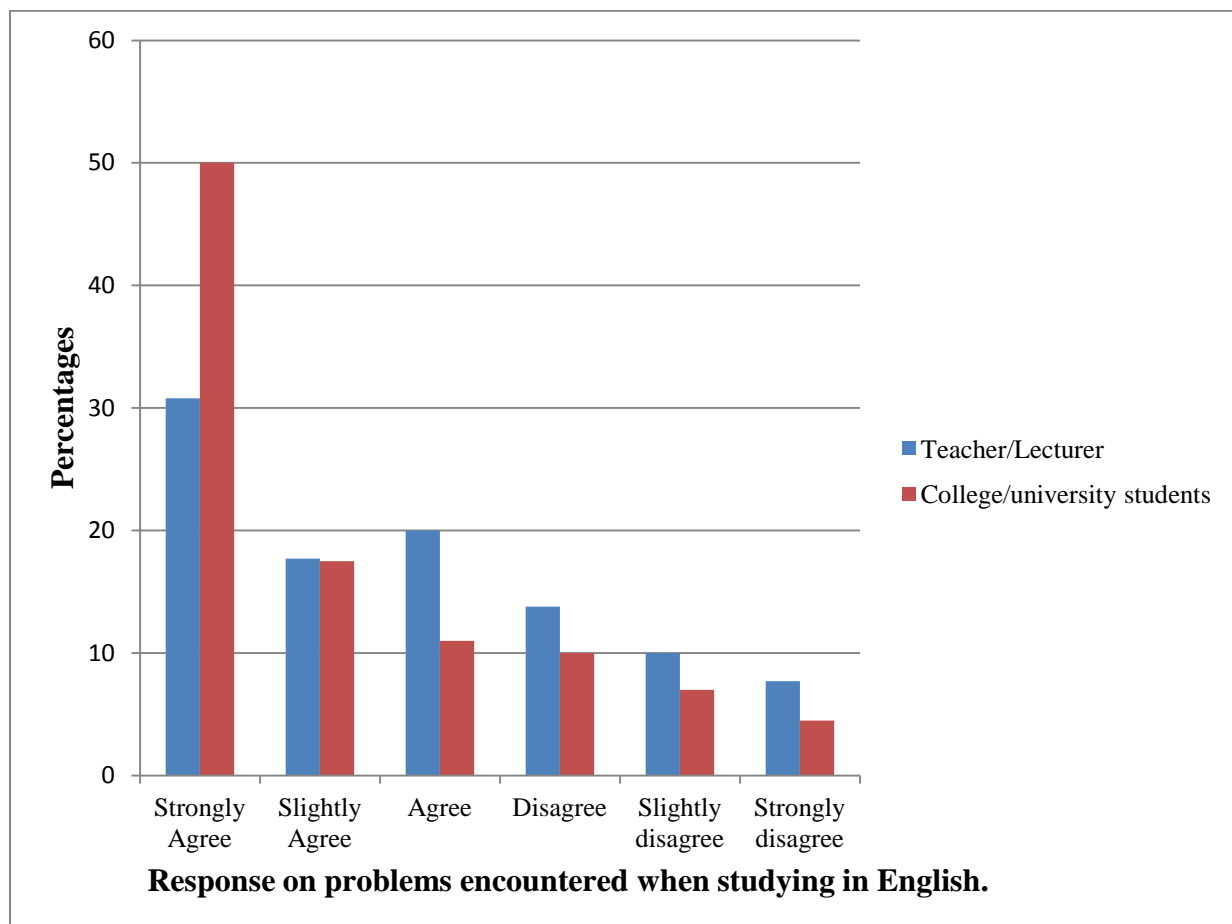
Question14. Most students in schools and tertiary levels encounter problems when studying in English .

Table 4.24: Responses on learners' encounter of problems when studying in English. (N= 460)

Response	Number of respondents			Percentage		
	Teachers /lecturers	College/ university Students	Total	Teacher/ lecturers	College/ university Students	Total
Strongly agree	80	100	180	30.8	50	39.1
Slightly agree	46	35	81	17.7	17.5	17.6
Agree	52	22	74	20	11	16.1
Disagree	36	20	56	13.8	10	12.2
Slightly disagree	26	14	40	10	7	8.7
Strongly disagree	20	9	29	7.7	4.5	6.3
Total Response	260	200	460	100	100	100

Statistics in table 4.24 has been presented graphically in figure 4.29 below. Analysis of this information is below figure 4.29.

Figure 4.29: Responses on learners' encounter of problems when studying in English. (N= 460)

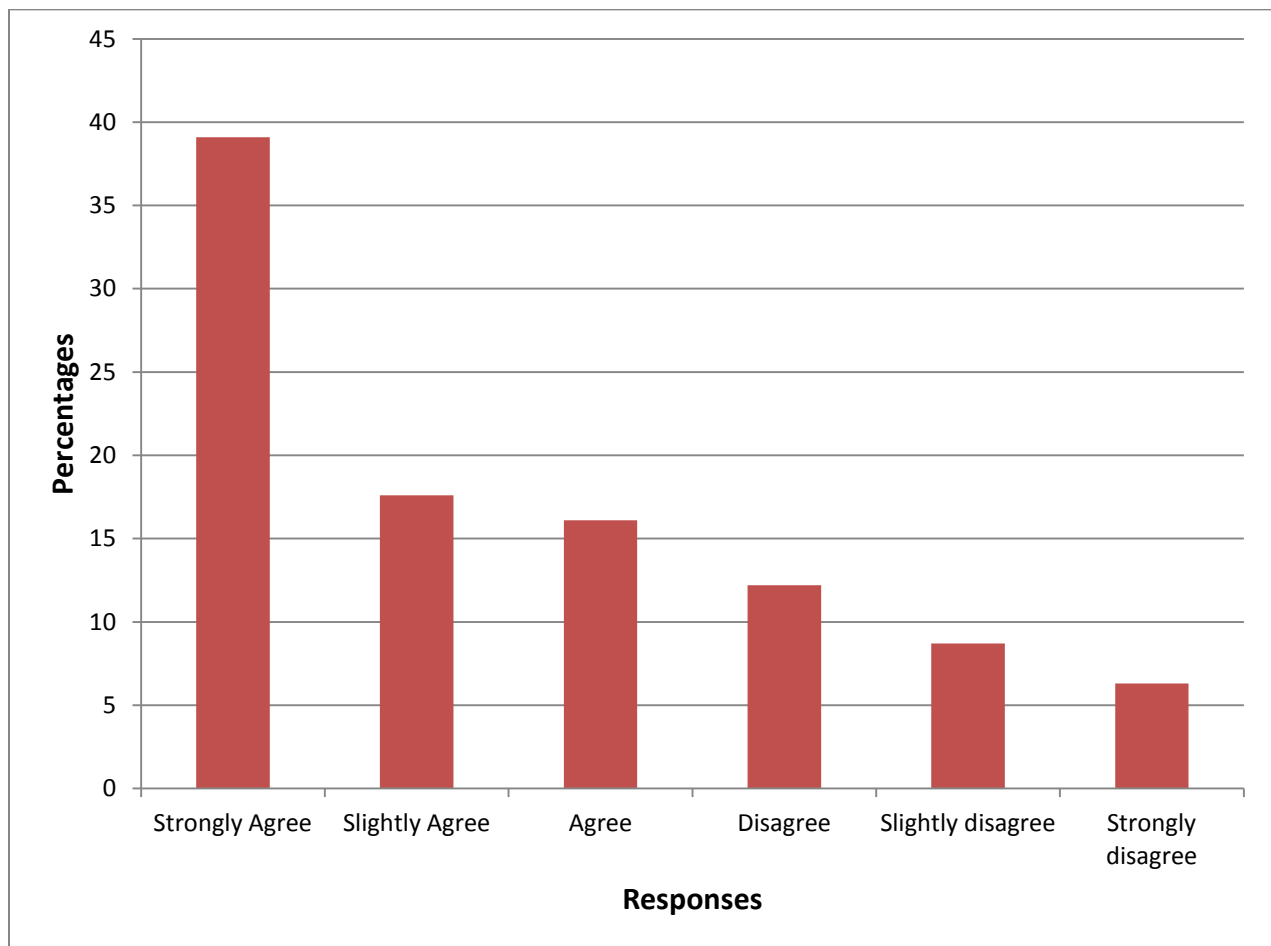


In table 4.24 above, the Agree, Slightly Agree and Strongly Agree categories of responses in the questionnaires reflect a positive response (agree) whilst the Disagree, Slightly Disagree and Strongly Disagree reflected a negative response (disagree). This question was answered by Teachers/Lecturers and college/university students only. Findings from the questionnaires show that college/university students encounter a lot of problems where English is used as medium of instruction. A cumulative 62.8% of the respondents from strongly agree to agree confirm that College/University learners encounter problems when studying in English. To them English is

not their mother tongue and hence they have difficulties in mastering concepts that are not related to their environment.

The pattern of responses being manifested on bar graph in figure 4.29 indicated that the respondents both college/university students and teachers/lecturers believe that learners will experience problem when studying English.

Figure 4.30: Total Responses on learners' encounter of problems when studying in English.
(N= 460)



Findings from the responses illustrated on the bar graph show that college/university students do encounter a lot of problems where English is used as medium of instruction. Probably the respondents believe that they would understand the concepts being learnt better in their mother tongue as English is not always used in their homes.

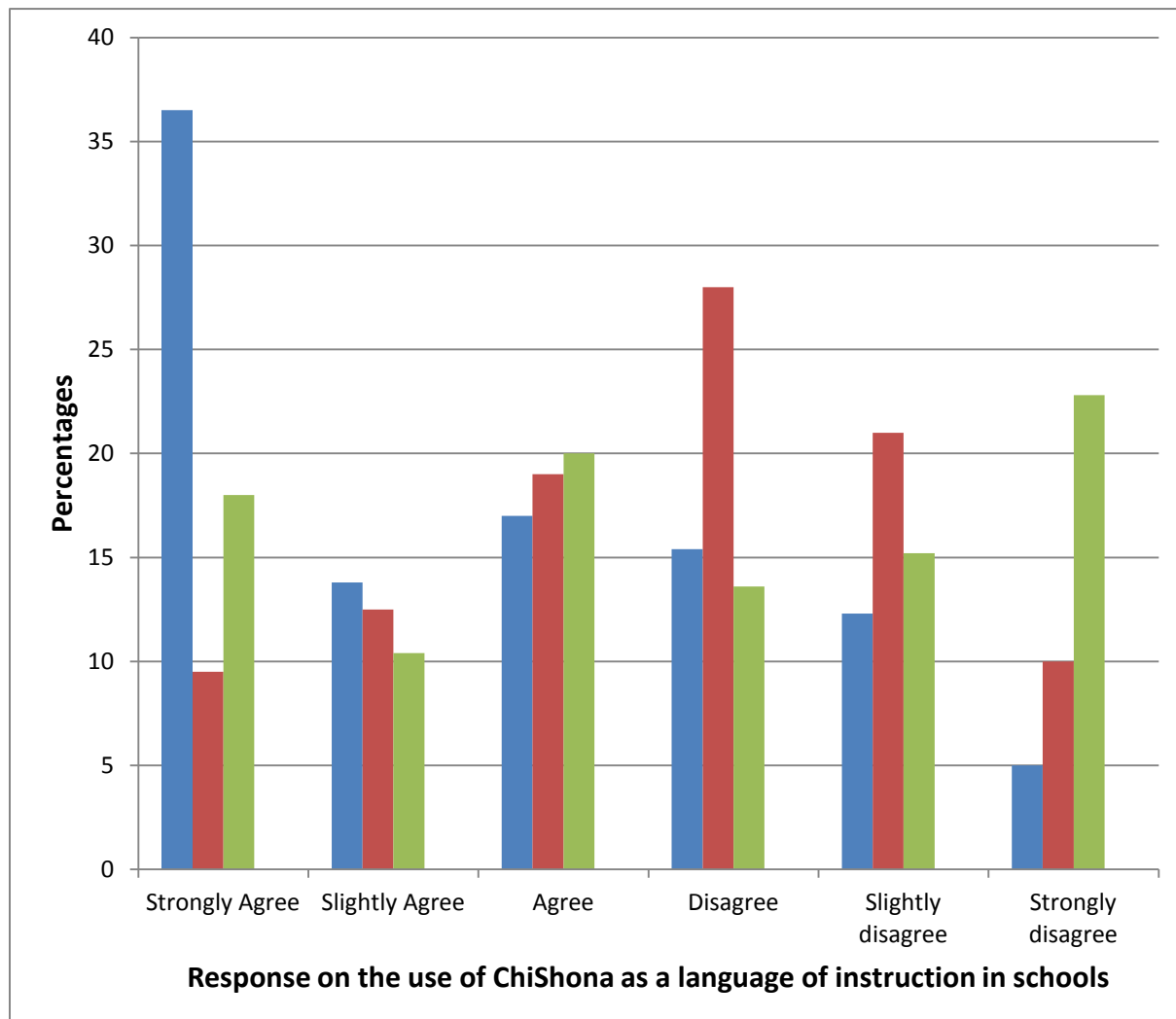
Question 15. The use of ChiShona as languages of instruction in education is a key national issue that requires urgent attention.

Table 4.25: Responses on the use of ChiShona as a language of instruction in education being a key national issue that requires urgent attention (N=710)

Response	Number of respondents				Percentage			
	Teachers /Lecturers	College/ university Students	Parents	Total	Teachers /Lecturers	College/ university Students	Parents	Total
Strongly agree	95	19	45	159	36.5	9.5	18	22.4
Slightly agree	36	25	26	87	13.8	12.5	10.4	12.3
Agree	44	38	50	132	17	19	20	18.6
Disagree	40	56	34	130	15.4	28	13.6	18.3
Slightly disagree	32	42	38	112	12.3	21	15.2	15.8
Strongly disagree	13	20	57	90	5	10	22.8	12.6
Total Response	260	200	250	710	100	100	100	100

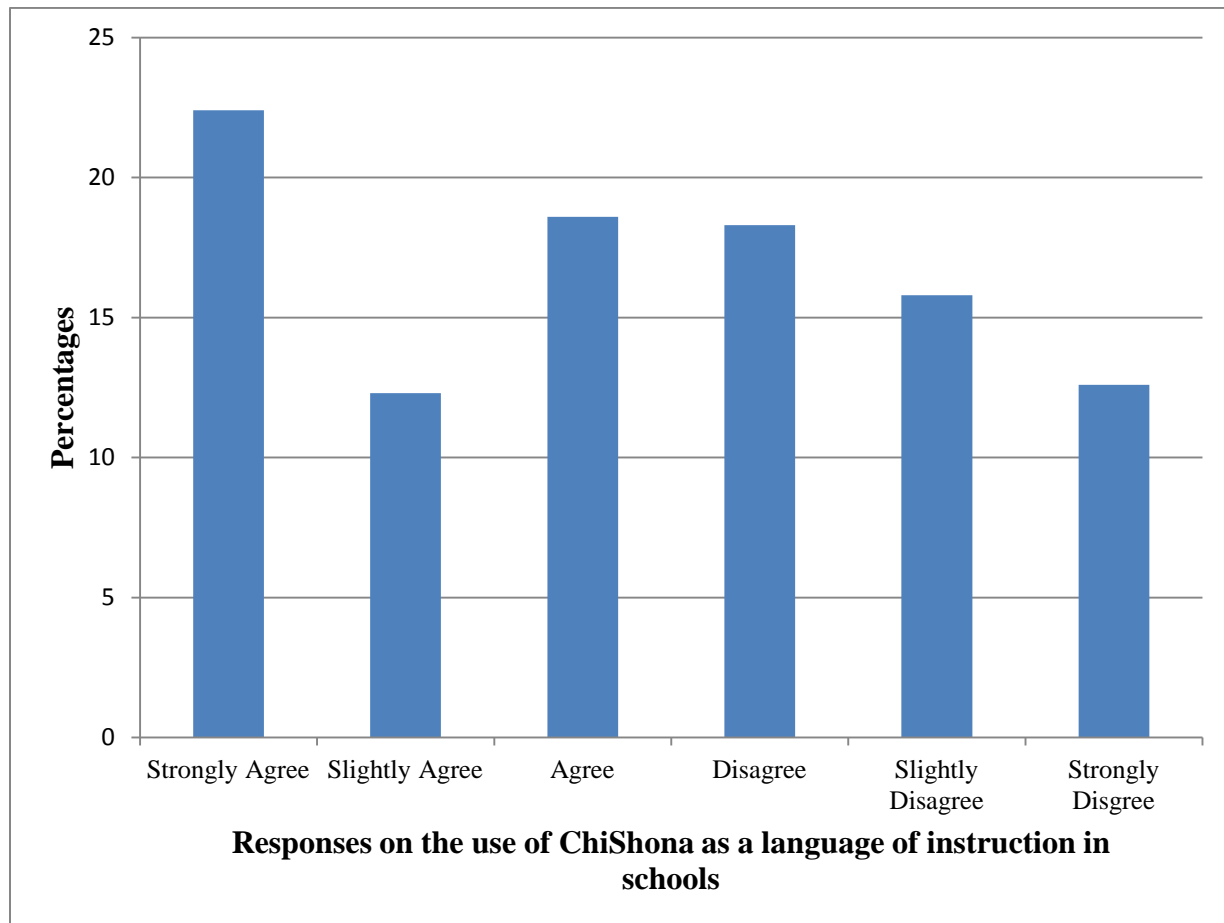
Statistics in table 4.25 has been presented graphically in figure 4.31 below.

Figure 4.31: Bar graph showing responses on the use of ChiShona as a language of instruction that requires urgent national attention in education. (N=710)



Statistically a total of 53.3% of the respondents, as shown in table 4.25, confirmed positively that the use of ChiShona as a language of instruction in education was indeed a national concern. ChiShona would provide the link between the individual and their economic environment and ability to express their potentials. A significant number of the respondents (48.7%) indicated that the use of ChiShona as a medium of instruction will have negative effects, for example Science subjects will be negatively affected since it is difficult to express scientific knowledge using indigenous languages.

Figure 4.32: Total responses on the use of ChiShona as a language of instruction that requires urgent national attention in education. (N=710)



This question intended to find out from the respondents whether the use of ChiShona as a language of instruction in education is a key national issue that requires urgent attention. 53.3% of the respondents from the categories of strongly agree to agree indicated that the use of ChiShona as a language of instruction is a key national issue which should be addressed urgently. The use of ChiShona as a language of instruction promotes ownership.

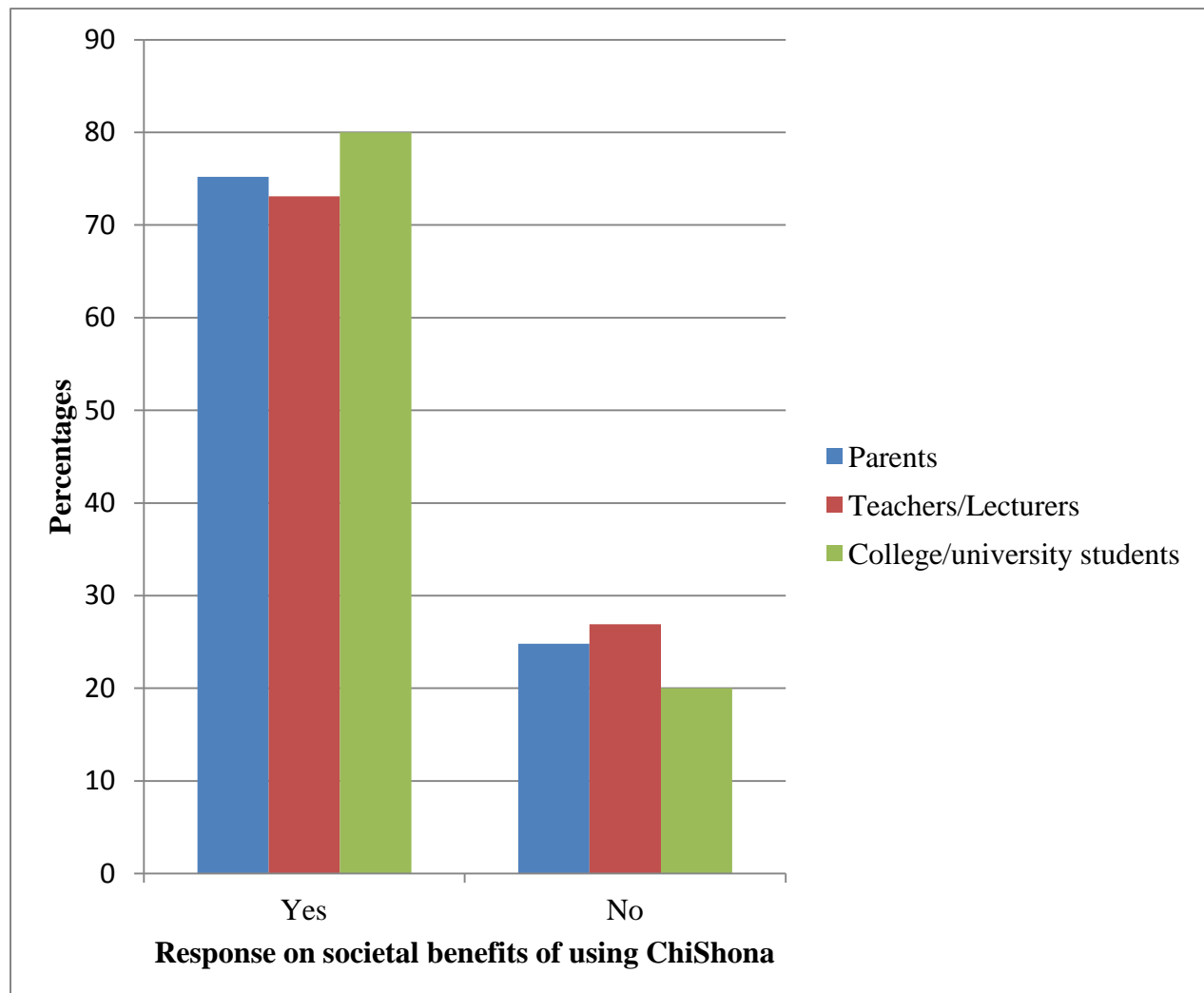
Question16. Are there any wider societal benefits you can foresee if education in Zimbabwe is to be carried out using ChiShona as a language of instruction?

Table 4.26: Response on whether there are any societal benefits foreseen if education in Zimbabwe is carried out using ChiShona as a language of instruction.

Response	Number of respondents				Percentage			
	Parents	Teachers /Lecturers	College/ university Students	Total	Parents	Teachers /Lecturers	College/ university Students	Total
Yes	188	190	160	538	75.2	73.1	80	75.8
No	62	70	40	172	24.8	26.9	20	24.2
Total Response	250	260	200	710	100	100	100	100

The information in table 4.26 has been graphically presented in a bar graph in figure 4.33 below.

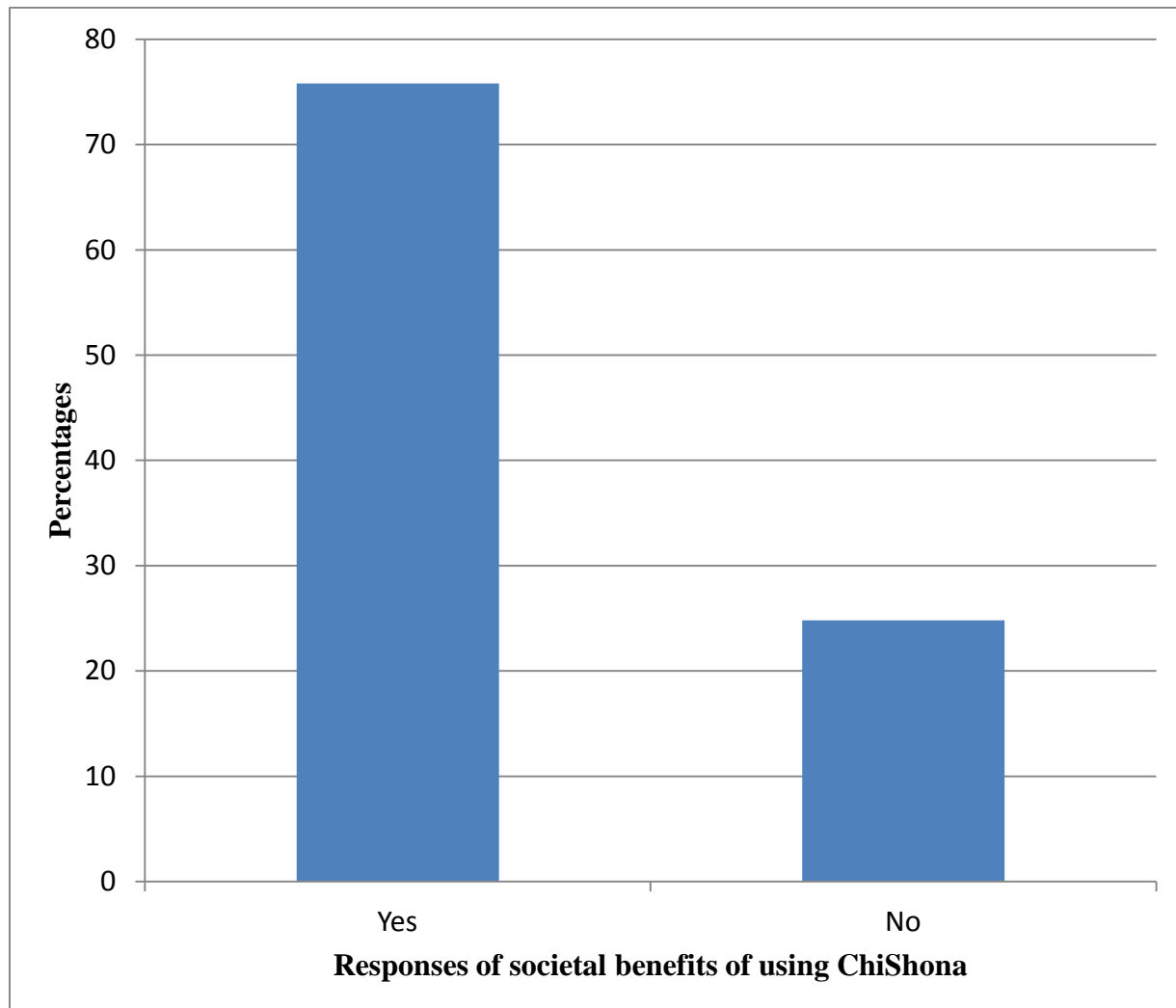
Figure 4.33: Response on whether there are any societal benefits foreseen if education in Zimbabwe is carried out using ChiShona as a language of instruction.



The statistics from the table 4.26 above shows that 75.8% of the respondents indicated that the use of ChiShona as a language of instruction, that is, mother tongue instruction, in education has societal benefits in Zimbabwe. Mother tongue should form the basis of learning because mother tongue instruction facilitates understanding. College/university students (80%) agreed that the use of ChiShona as a language of instruction in education will benefit the society. Language is a communication tool without which there is no development. It is a vehicle of projecting one's norms, values, beliefs, thought processes and these need to be communicated. 24.2% of the respondents believed that the use of ChiShona as medium of instruction cannot benefit the

education of Zimbabwe. The bar graph in figure 4.33 above clearly shows that the parents, teachers/lecturers and college/university students agree that the use of ChiShona as a language of instruction in education is a vehicle to the development of the society. Uses of indigenous languages enable environmental adaptation by sharing ideas to manage or conquer the environment. ChiShona, as a mother tongue, is undoubtedly the language through which the child will understand his/her environment and concepts far better (Mutasa, 2004).

Figure 4.34: Response on whether there are any societal benefits foreseen if education in Zimbabwe is carried out using ChiShona as a language of instruction.



The question posed was to establish emphatically the attitudes of the respondents towards the use of ChiShona as a language of instruction in education. The majority of the respondents (75.8%) confirmed that the use of ChiShona as a medium of instruction in education will benefit the society.

Respondents	The social benefits society will experience if ChiShona is used as a medium of instruction in education.
(a)Parents	<ul style="list-style-type: none"> • The indigenous language will bring the nation together. • It will be a way to ensure that our indigenous languages do not die.
(b)Teachers/ Lecturers	<ul style="list-style-type: none"> • African language for enrichment of culture • Because they would understand the concepts better as English is not always used in our homes • It will provide access to almost all sources of knowledge including school textbooks. • Its use in education may lead to the promotion or better status for African languages.
(c) College/University students	<ul style="list-style-type: none"> • It will become a language of international communication and a lingua franca for academics. • The use of ChiShona as a language of instruction will enhance the performance of the learners

Question17. What negative societal effects would the use of indigenous African languages as languages of instruction have?

Table 4.27: Responses on the negative societal effects the indigenous African languages would have as languages of instruction

Respondents	Responses on the negative societal effects the indigenous African languages would have as languages of instruction
(a)Parents	<ul style="list-style-type: none"> • ChiShona will dominate the other indigenous languages such as IsiNdebele and Kalanga. That domination will promote tribalism within the society. • Instruction in a selected indigenous African language will only benefit speakers of that language variety at the expense of the wider African community. • Indigenous African languages lack depth; they are shallow in terms of vocabulary. These are languages spoken by under developed minority /ethnic groups.
(b)Teachers/ Lecturers	<ul style="list-style-type: none"> • Science subjects will be negatively affected since it is difficult to express scientific knowledge using indigenous African languages. • Indigenous African languages will only apply to a particular country rather than the whole continent. • African communities will be isolated and excluded from the global village, which communicates mainly in internationally recognized European African languages.
(c) College/Univers ity students	<ul style="list-style-type: none"> • They are not adaptable or adoptable to other languages. • It is natural that inequity in groups inherently leads to disparities in language use with dominant groups enjoying use of their own language.

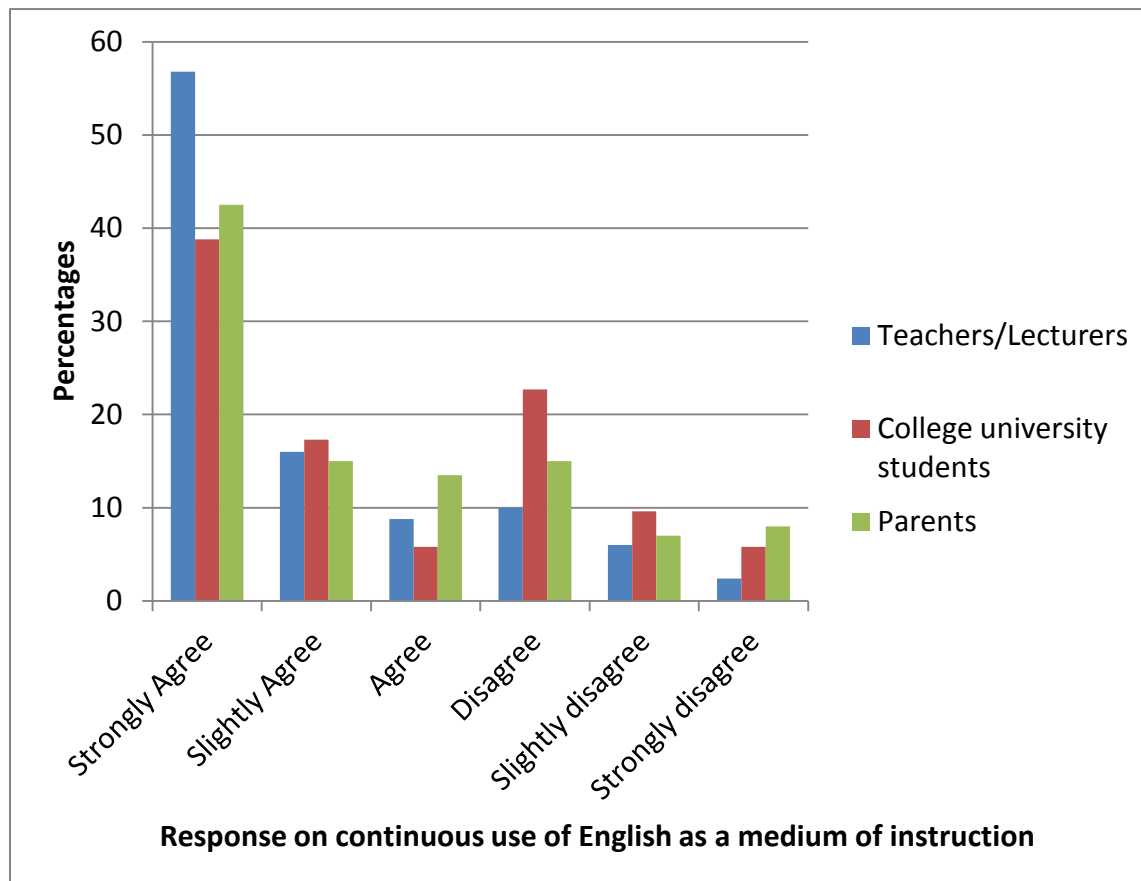
Question 21. English should continue to be used as the official medium of instruction in Zimbabwe's education system.

Table 4.28: Responses on whether English should continue to be used as the official medium of instruction in Zimbabwe's education system.

Response	Number of respondents				Percentage			
	Parents	Teachers /Lecturers	College/ university Students	Total	Teachers /Lecturers	College/ university Students	Parents	Total
Strongly agree	142	101	85	328	56.8	38.8	42.5	46.2
Slightly agree	40	45	30	115	16	17.3	15	16.2
Agree	22	15	25	62	8.8	5.8	13.5	8.7
Disagree	25	59	30	114	10	22.7	15	16.1
Slightly disagree	15	25	14	54	6	9.6	7	7.6
Strongly disagree	6	15	16	37	2.4	5.8	8	5.2
Total Response	250	260	200	710	100	100	100	100

The information in table 4.28 has also been graphically presented in the figure 4.35

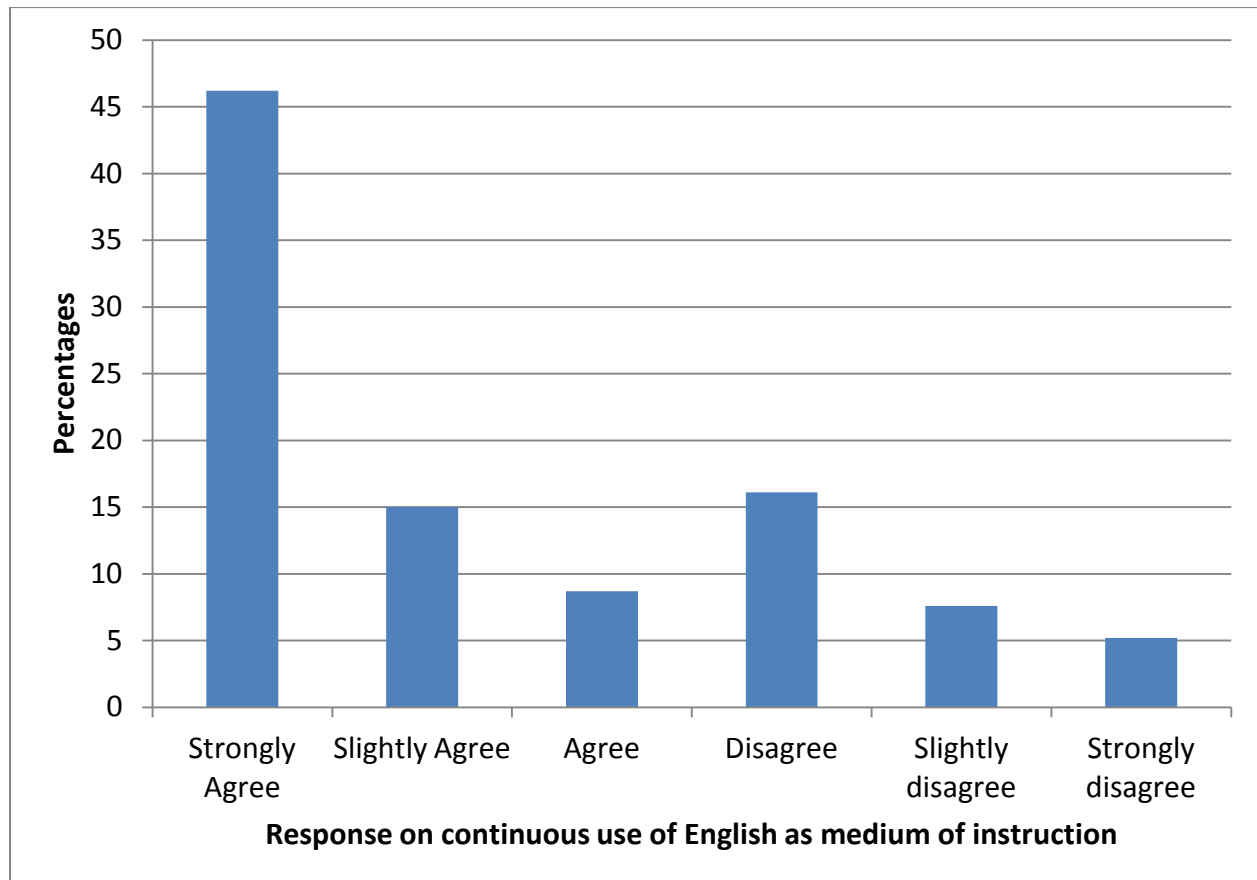
Figure 4.35: Responses on whether English should continue to be used as the official medium of instruction in Zimbabwe’s education system.



Continued use of English as a language of instruction was the preferred response by the majority of respondents (71.1%) and this is clearly shown on the bar graph. This seems to emanate from the notion that a well “schooled” child is one who is conversant and fluent in the English language. English language seems to be taking on the position of language for prosperity. English is spoken internationally and is used in the work place by the employers and employees. It is the world’s lingua franca. For as long as the education policy has not changed with regard to indigenous African languages and books are not yet available in indigenous African languages it will be a futile exercise to discontinue the use of English as a medium of instruction. Similarly statistics from table 4.35 above show that a total of 71.1% of the respondents from the categories of strongly agree to agree believe that English should continue to be used as the official medium of instruction in Zimbabwe’s education system. 28.9% of the respondents do not agree that

English should continue as a medium of instruction in the education system of Zimbabwe. English is the official medium of instruction in education system of Zimbabwe.

Figure 4.36: Total responses on whether English should continue to be used as the official medium of instruction in Zimbabwe’s education system.



English as a medium of instruction continues to enjoy the preference of respondents. The majority of the respondents believe that English should continue as a language of instruction in schools. This may be attributed to the attitude attached to higher social status that is accorded to someone who is fluent in the language and that English language should be passed at ‘O’ level if one is to become a professional in Zimbabwean economy. English is associated with the best. Indigenous languages are not taken seriously as media of instruction in scientific subjects such as mathematics and there is little research on how best they can be encompassed.

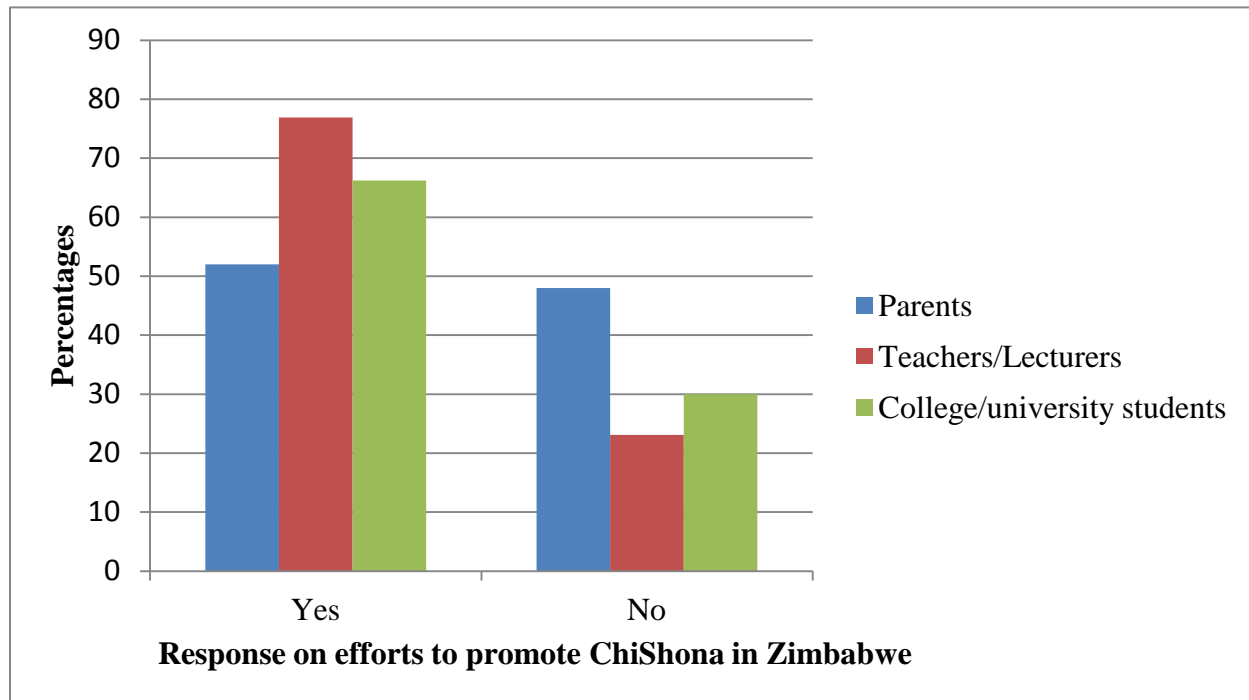
Question 22. Are there any efforts being made to promote the use of ChiShona in Zimbabwe?
(N=710)

Table 4.29: Responses on efforts being made to promote the use of ChiShona in Zimbabwe

Response	Number of respondents				Percentage			
	Parents	Teachers /Lecturers	College/ university Students	Total	Parents	Teachers /Lecturers	College/ university Students	Total
Yes	130	200	140	470	52	76.9	70	66.2
No	120	60	60	240	48	23.1	30	33.8
Total	250	260	200	710	100	100	100	100

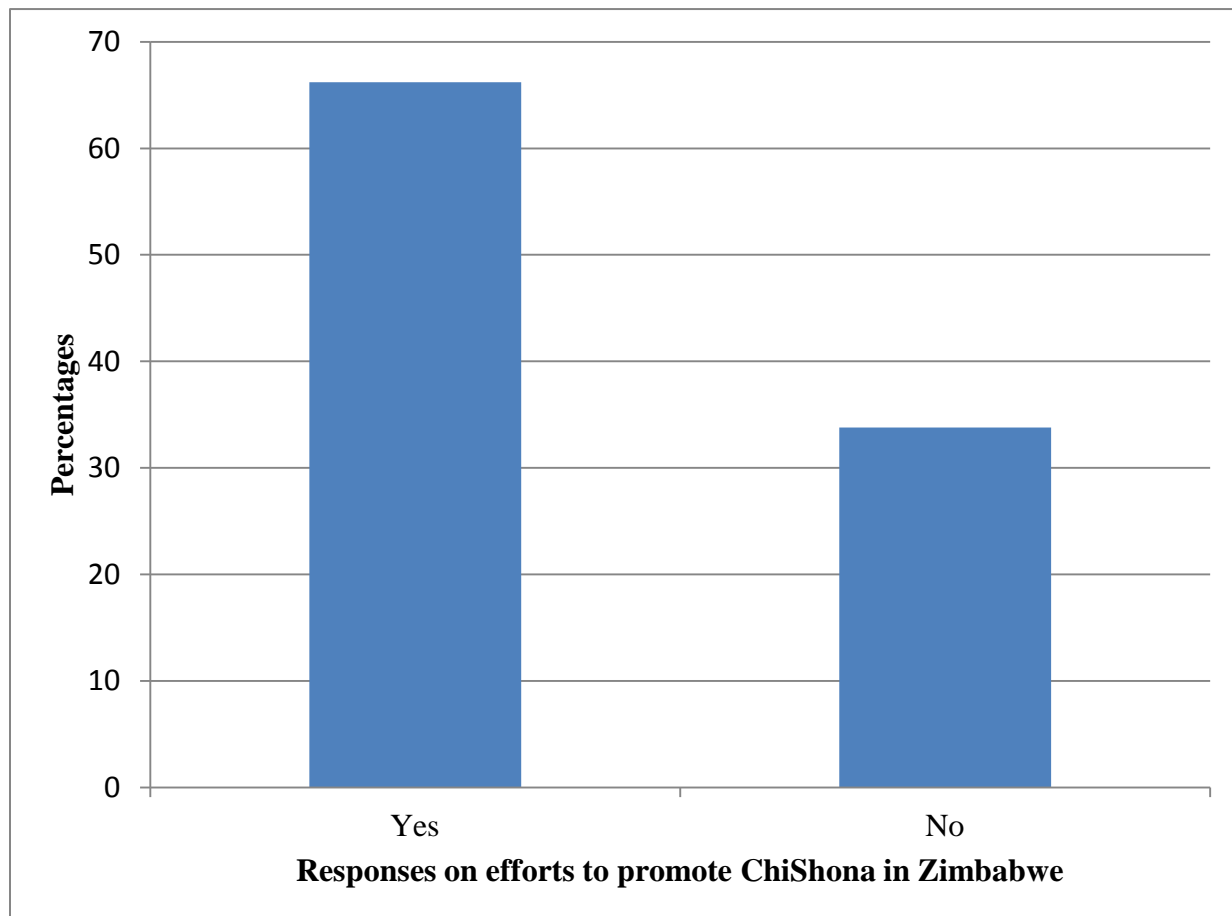
Statistics in table 4.29 above has been presented in a bar graph if figure 4.37 below.

Figure 4. 37: Responses on efforts being made to promote the use of ChiShona in Zimbabwe



The statistics in the table 4.29 above shows that parents (52%), teachers/lecturers (76.9%) and college/university students (70%) agreed that efforts are being made to promote the use of ChiShona in Zimbabwe. The Government realizes that promoting the use of indigenous languages in Zimbabwe will contribute to the empowerment and improvement of the socio-cultural status of the people. The revised Education Act of 2006, which states that ChiShona may be used as media of instruction, gives evidence to the promotion of ChiShona in Zimbabwe.

Figure 4.38: Total responses on efforts being made to promote the use of ChiShona in Zimbabwe



The bar graph shows that only 66.2% of the respondents agree that to some extent effort is being made positively in the promotion and use of ChiShona spoken in the country. It is clear that the respondents acknowledge that efforts are being made to promote the use of ChiShona in Zimbabwe. Language associations have been formed by various professionals and these have contributed positively towards the growth and use of indigenous African languages as media of instruction. Amongst the perceived contributors, the Shona Language and Culture Association and the African Languages Research Institute have been noted by the respondents as the most effective in terms of language promotion and use in Zimbabwe.

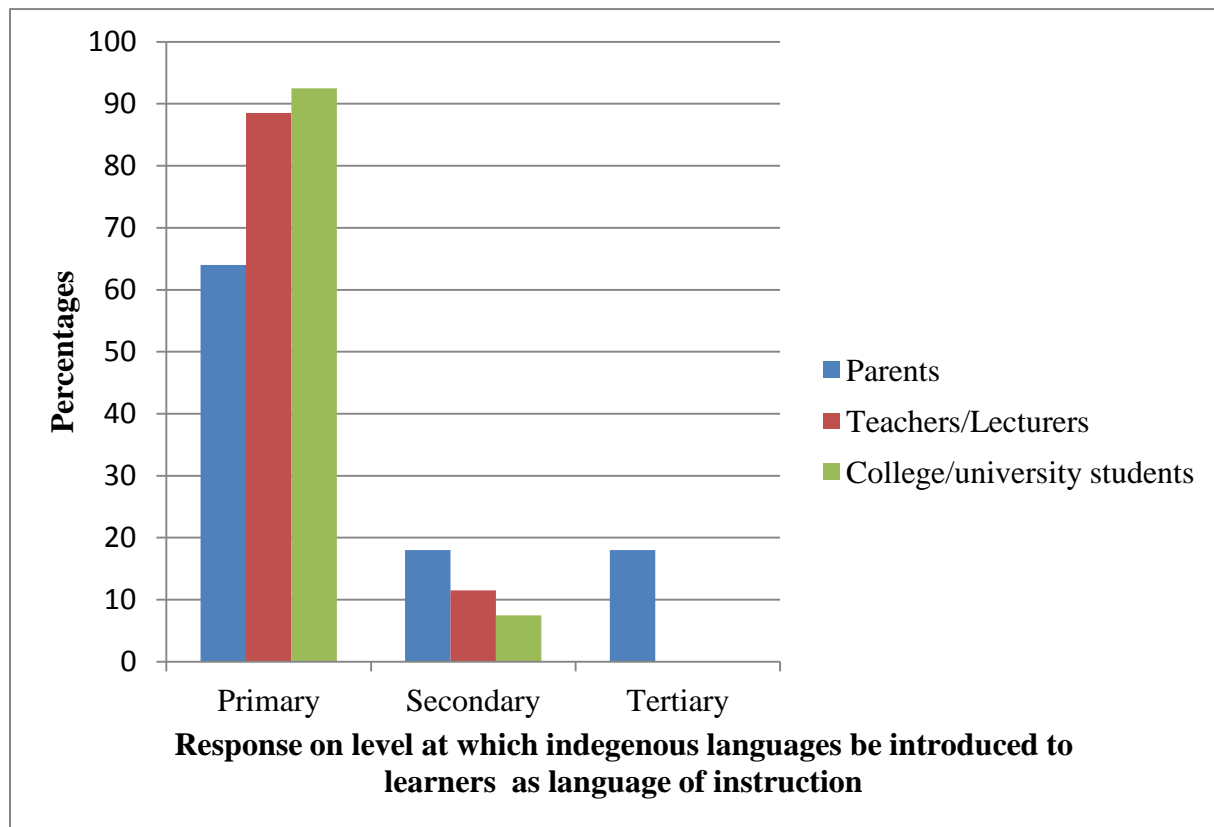
Question 23. At what level of education should indigenous African languages be introduced as media of instruction?

Table 4.30: Responses on the level of education which indigenous African languages should be introduced as medium of instruction

Response	Number of responses				Percentages			
	Parents	Teachers /Lecturers	College/ university Students	Total	Parents	Teachers /Lecturers	College/ university Students	Total
Primary	160	230	185	575	64	88.5	92.5	81
Secondary	45	30	15	90	18	11.5	7.5	12.7
Tertiary	45	0	0	45	18	0	0	6.3
Total	250	260	200	710	100	100	100	100

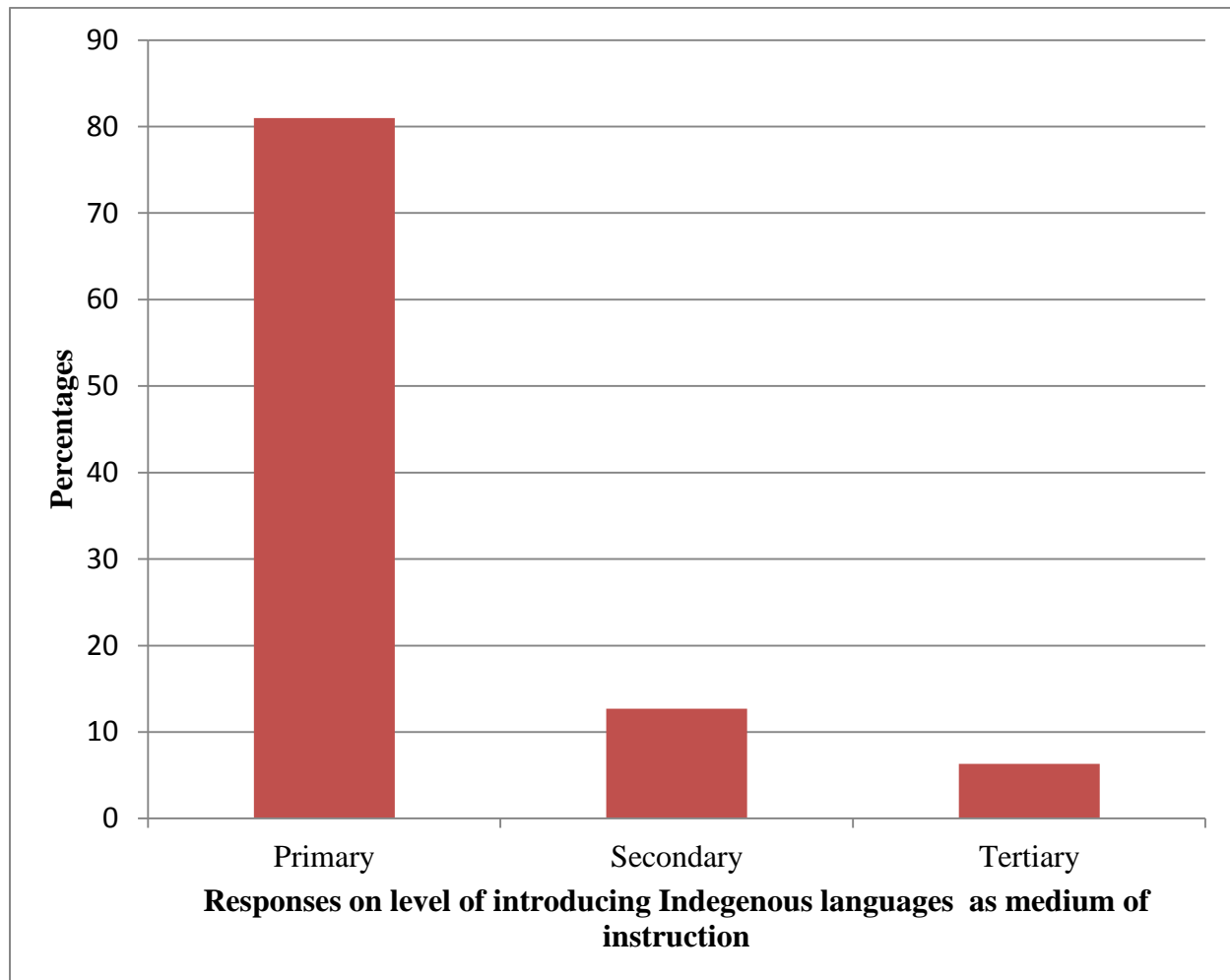
The information displayed in figure 4.30 has been presented graphically in figure 4.39 below.

Figure 4.39: Responses on the level of education which indigenous African languages should be introduced as medium of instruction



81% of the respondents envisage that indigenous African languages should be introduced at primary level. In this case the indigenous African languages will form a solid foundation for their use in education or even in science subjects as languages of instruction. Parents (6.3%) are the only respondents who had the view that indigenous African languages should be introduced at tertiary level. The teachers/lecturers (88.5%) and college/university students (92%) confirmed that indigenous languages should be used as languages of instruction only at the primary school level of education. Evidence from the bar graph clearly shows that parents, teachers/lecturers and college/university students are in agreement that indigenous languages be introduced to learners as languages of instruction at primary level.

Figure 4.40: Responses on the level of education which indigenous African languages should be introduced as medium of instruction



The question was to establish emphatically the attitude of the respondents whose majority are speakers of ChiShona towards the use indigenous African languages, for example, ChiShona as media of instruction in the teaching mathematics in primary school. The responses displayed graphically in figure 4.40 confirms that the majority of respondents are not in favour of using English only as the language of instruction from primary level to tertiary level.

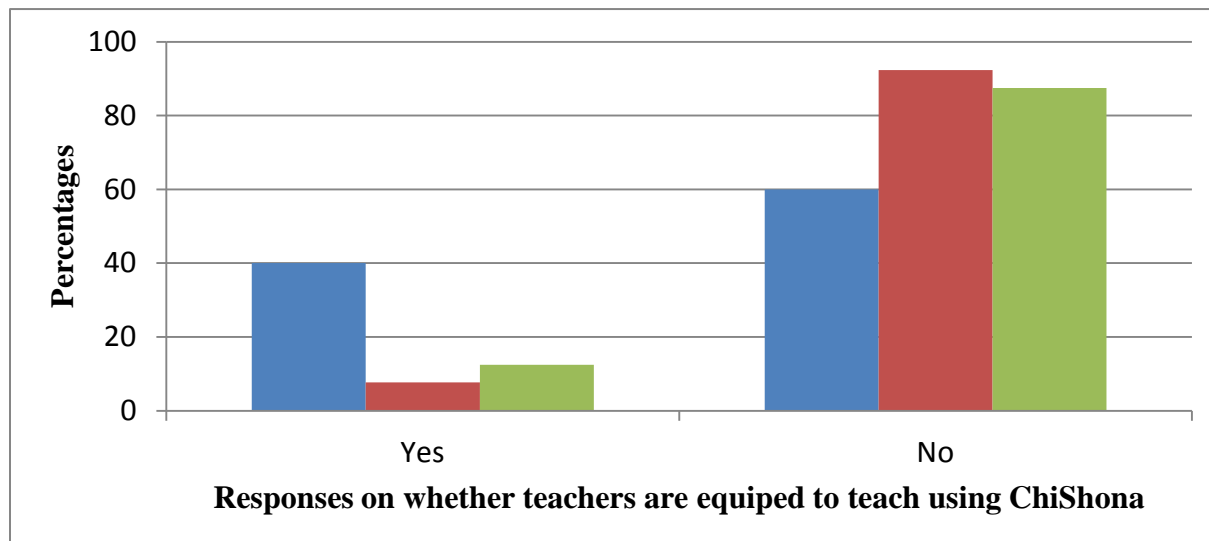
Question 24. Do you think teachers in Zimbabwe are fully equipped to teach using an indigenous African language as a medium of instruction? (N=710)

Table 4.31: Responses whether teachers in Zimbabwe are fully equipped to teach using an indigenous African language as a medium of instruction

Response	Number of responses				Percentages			
	Parents	Teachers /Lecturers	College/ university Students	Total	Parents	Teachers /Lecturers	College/ university Students	Tot
Yes	100	20	25	145	40	7.7	12.5	20.4
No	150	240	175	565	60	92.3	87.5	79.6
Total Response	250	260	200	710	100	100	100	100

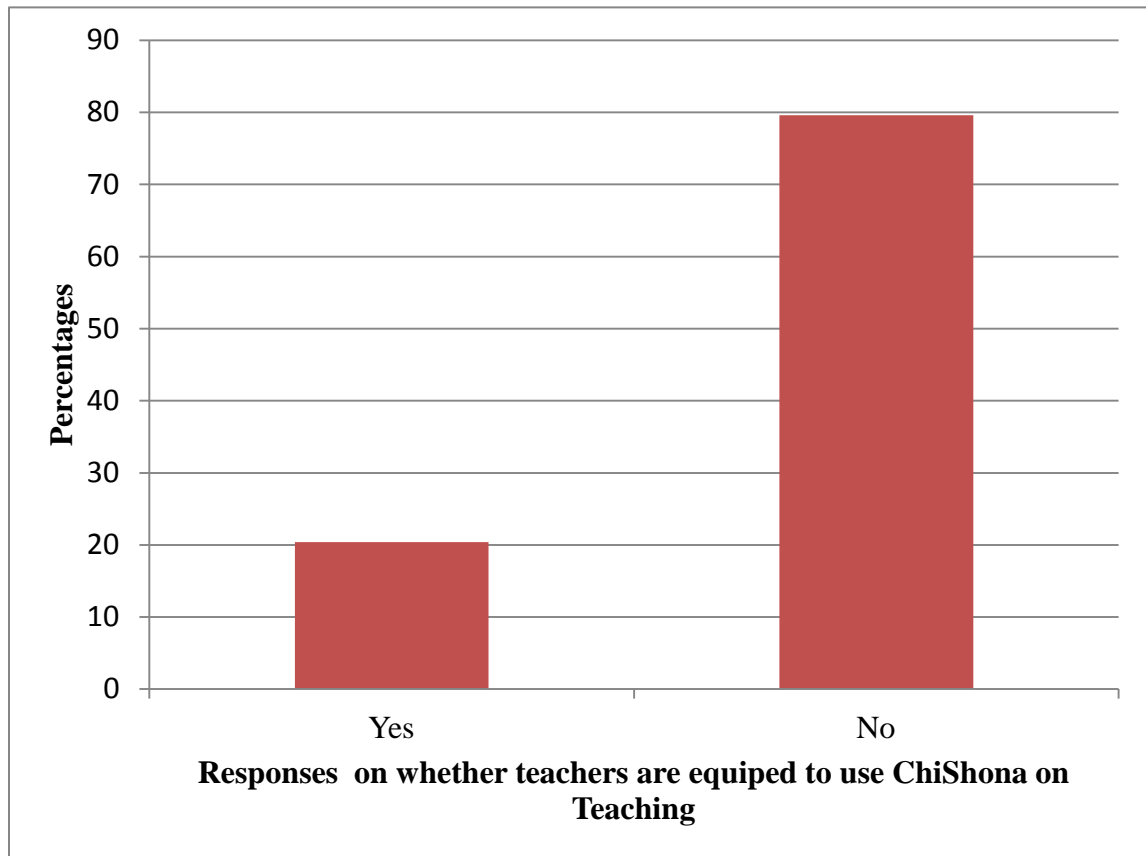
The information in table 4.31above has been displayed graphically in figure 4.41 below and its analysis is discussed below the figure.

Figure 4.41: Responses on whether teachers in Zimbabwe are fully equipped to teach using an indigenous African language as a medium of instruction.



Statistics from table 4.31 above, parents (60%), teachers/lecturers (92.3%) and college/university students (87.5%), admitted that educators are not adequately trained and are ill equipped to teach using indigenous African languages as media of instruction. Admission by the teachers/lecturers (92.3%) is an indication that if ChiShona is to be used as a language of instruction in schools a lot need to be done to improve the situation. The training of teachers to use ChiShona as a language of instruction is long overdue and it's a milestone in the development of indigenous African languages. It is clear from figure 4.41 above that the majority of the respondents (79.6%) are of the view that teachers are not well equipped to teach using ChiShona as language of instruction in schools. 40% of the parents indicated on their questionnaire that teachers are well equipped to teach using ChiShona as medium of instruction. Probably these parents are not aware of what is happening within their schools. There is need for the government to put a policy that improves such a situation.

Figure 4.42: Total Responses on whether teachers in Zimbabwe are fully equipped to teach using an indigenous African language as a medium of instruction.



Parents, teachers/lecturers and college/university students are in agreement that the teachers are not equipped to teach using ChiShona as a medium of instruction in Zimbabwean schools. The training of teachers to teach any subject using ChiShona as a medium of instruction will go a long way in the use of indigenous African languages in developing the nation.

Respondents	Reasons why teachers in Zimbabwe are not fully equipped to teach using an indigenous African language as a medium of instruction
(a)Parents	<ul style="list-style-type: none"> • The indigenous African languages cannot be used to teach science subjects and hence the teachers cannot use them as languages of instruction. • They are not interested in using the indigenous African languages in schools. • It will negatively affect their status within the community.
(b)Teachers/ Lecturers	<ul style="list-style-type: none"> • The teachers are not trained to teach using the indigenous African language in science subjects. • The indigenous African languages are not developed to use the terminologies found in scientific subjects. • English language is the best language of instruction that has been tried and tested. • Some teachers look down upon the indigenous languages and hence the use of African languages as media of instruction in schools will reduce the status of the subjects. • There are no textbooks written in indigenous African languages to be used in Science subjects. • African languages are not internationally recognised and this education system will only be confined to Zimbabwe and not recognised elsewhere.
(c) College/University students	<ul style="list-style-type: none"> • The teachers have a negative attitude towards the use of indigenous African languages as media of instruction. • The teachers feel that the use of indigenous African languages as a language of instruction will not enhance the performance of the learners • Indigenous African languages are underdeveloped.

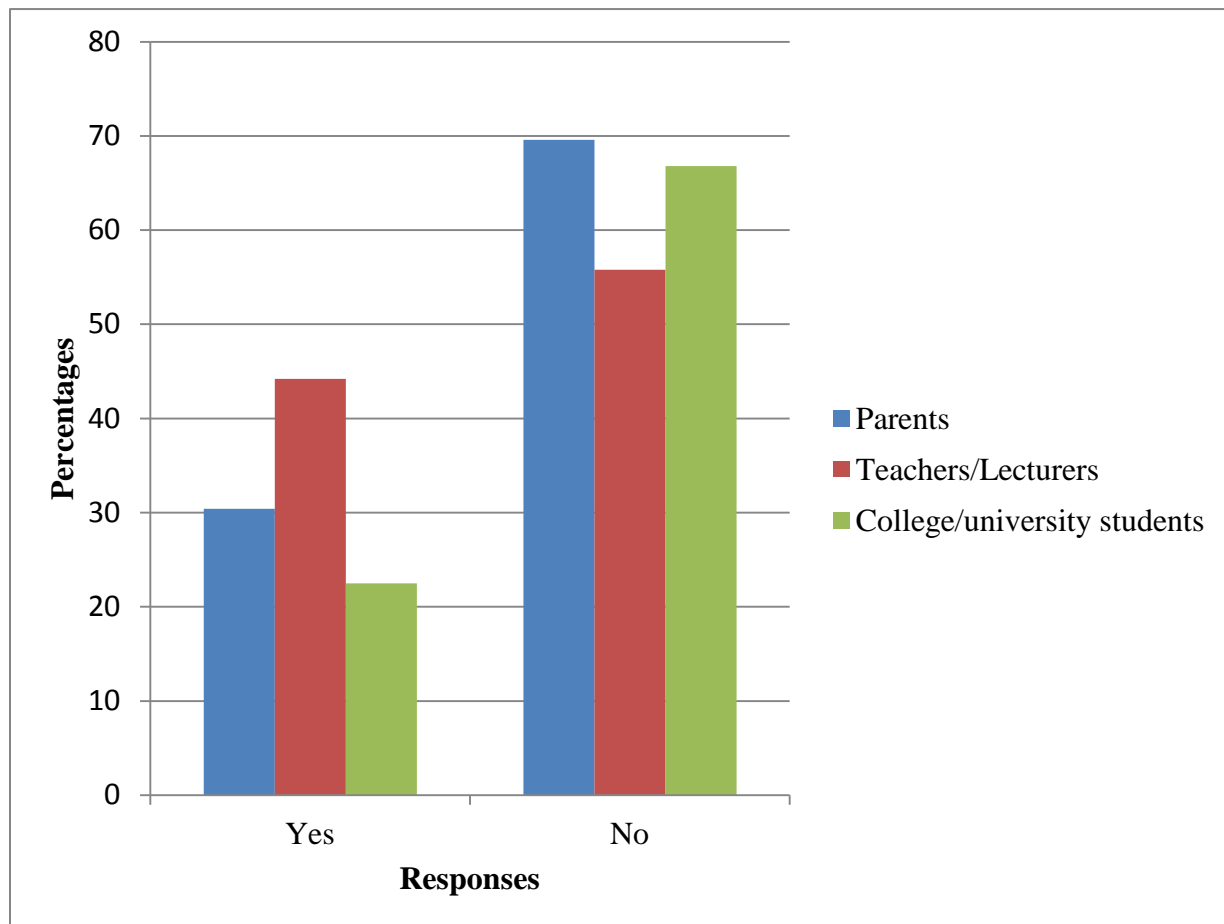
Question 25. Is there any willingness on the part of the Zimbabwean government to use indigenous African languages as media of instruction in education?

Table 4.32: Responses on whether the Zimbabwean government is willing to use indigenous African languages as media of instruction in education (N=710)

Response	Number of responses				Percentages			
	Parents	Teachers /Lecturers	College/ university Students	Total	Parents	Teachers /Lecturers	College/ university Students	Tot
Yes	76	115	45	236	30.4	44.2	22.5	33.2
No	174	145	155	474	69.6	55.8	77.5	66.8
Total	250	260	200	710	100	100	100	100

Statistics in table 4.32 above have been graphically displayed in figure 4.43 below.

Figure 4.43: Responses on whether the Zimbabwean government is willing to use indigenous languages as media of instruction in education (N=710)

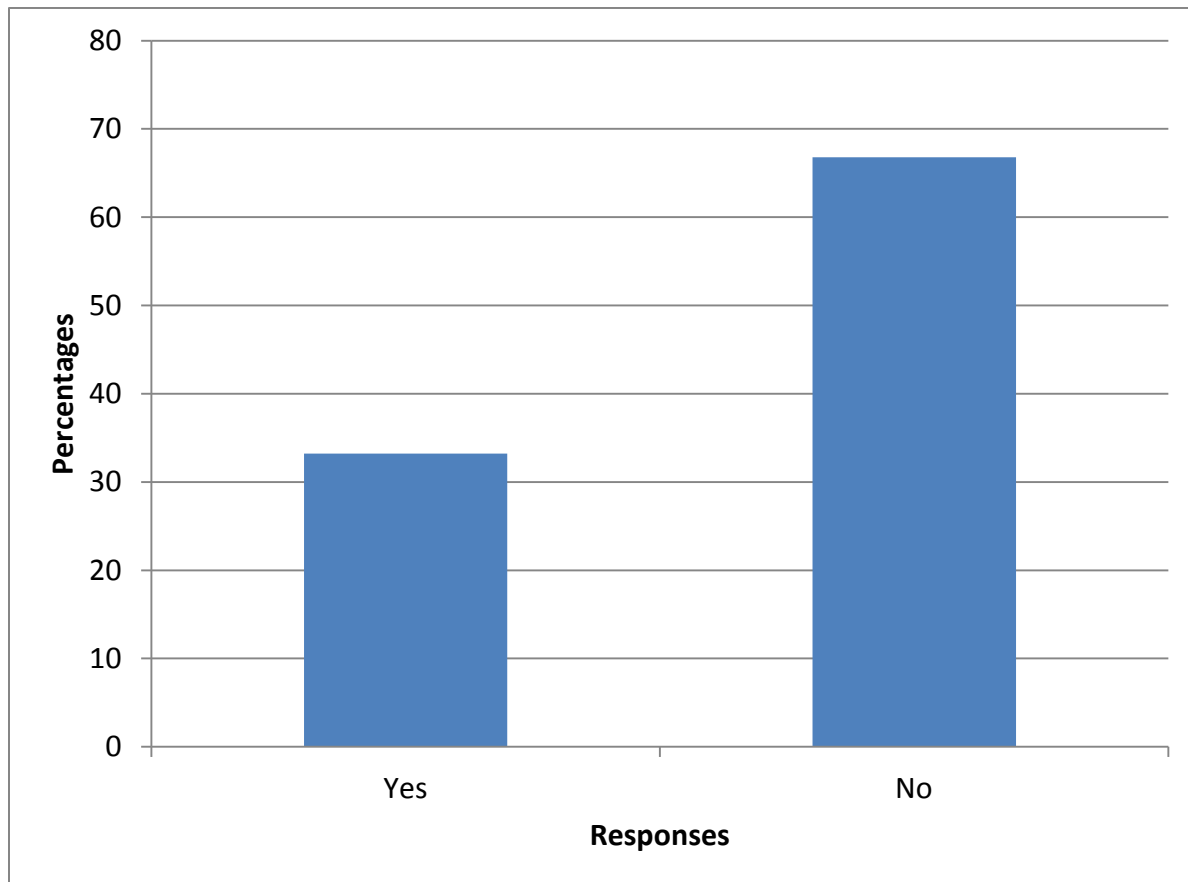


Statistics from the table 4.32 above indicates that parents (69.6%), teachers/lecturers (55.8%) and college/university students (77.5%) are of the view that there is no willingness on the part of the government to use indigenous languages as media of instruction in schools. The teachers/lecturers(44.2%) have a low percentage in the 'Yes' category compared to the 'No' category (55.8%) probably as a result of their awareness of The Education Act 1987 which allows the use of ChiShona and IsiNdebele in teaching primary children up to Grade three level.

The question intended to find out whether the government is playing any part in the promotion of indigenous African languages in schools. It centres on the policies the government has made to enforce the use of indigenous African languages as media of instruction in schools. The majority

of the respondents (66.8%) indicated that the government is showing no willingness in the use of indigenous African languages as media of instruction.

Figure 4.44: Total responses on whether the Zimbabwean government is willing to use indigenous African languages as media of instruction in education (N=710)



Cumulatively (66.8%) the parents, teachers/lecturers and college/university students have admitted that the government on its part is not willing to use indigenous African languages as languages of instruction in schools. No language policy has been put in place by the government to ensure that indigenous African languages are used as media of instruction in primary schools up to university.

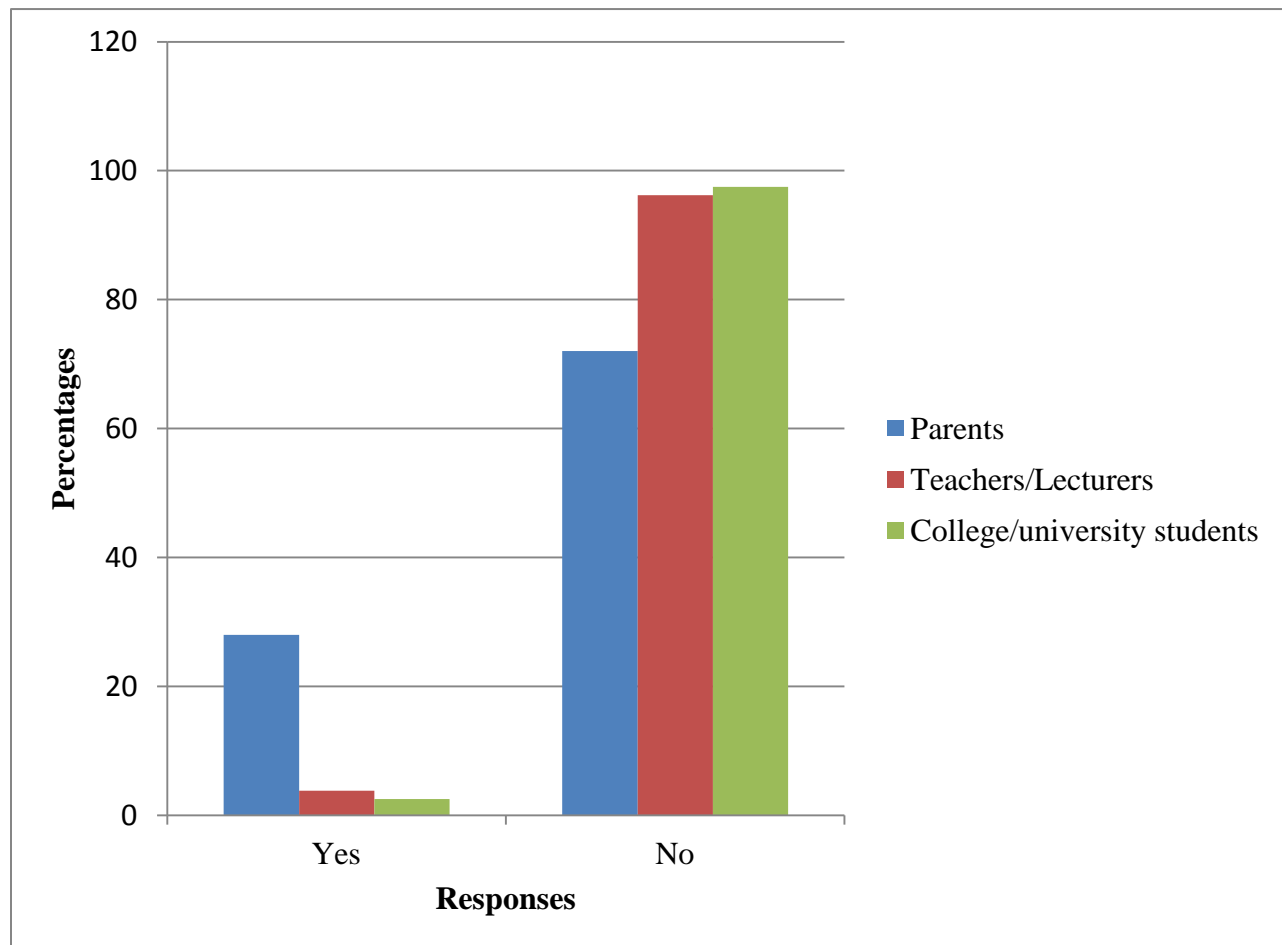
Question 26: Is there adequate teaching material to conduct learning of Mathematics in ChiShona?

Table 4.33: Responses on whether there is adequate teaching material to conduct learning of Mathematics in ChiShona? (N=710)

Response	Number of responses				Percentages			
	Parents	Teachers /Lecturers	College/ university Students	Total	Parents	Teachers /Lecturers	College/ university Students	Total
Yes	70	10	5	85	28	3.8	2.5	12
No	180	250	195	625	72	96.2	97.5	88
Total Response	250	260	200	710	100	100	100	100

The information in table 4.33 has been presented graphically in figure 4.45 below and the analysis is done below the figure.

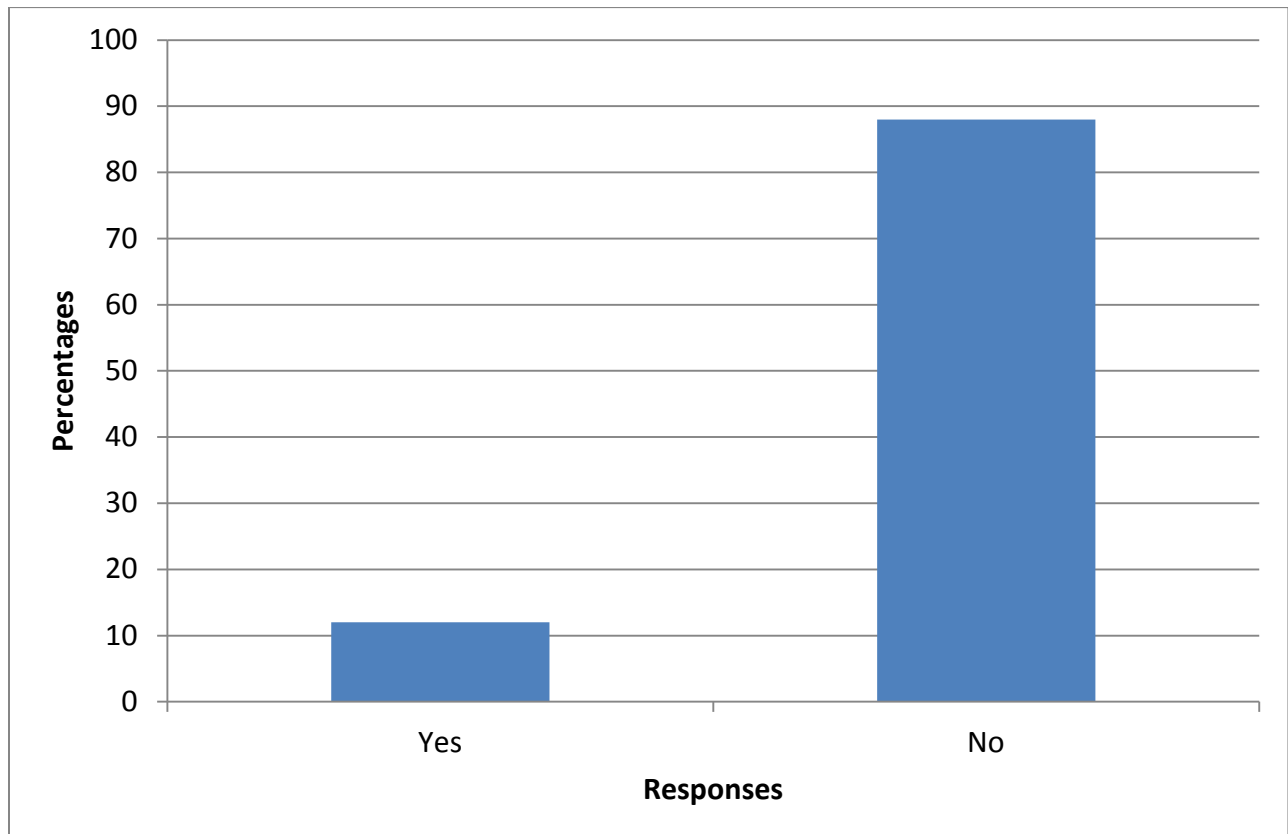
Figure 4.45: Responses on whether there is adequate teaching material to conduct learning of Mathematics in ChiShona? (N=710)



88% of the respondents envisage that there is no adequate teaching material to conduct learning of Mathematics in ChiShona. In this case ChiShona has no capacity as a vehicle to be used as a medium of instruction. If enough preparation and research is done in developing the use of ChiShona in teaching mathematics it will alleviate the problems encountered in the learning and teaching of science subjects in schools. There is need for a language policy that favours the use of indigenous African languages in schools and open avenues of employment and research towards the development of teaching material for indigenous African languages. The high percentages in the 'No' category by the parents, teachers/lecturers and college/university students is a clear indication that there is no adequate learning material in ChiShona that can be

used to teach Mathematics. There is need for the government to create a language policy that allows the translation of material from English to ChiShona.

Figure 4.46: Responses on whether there is adequate teaching material to conduct learning of Mathematics in ChiShona (N=710)



Question 26 evaluates whether there is adequate teaching material to be used when teaching Mathematics using ChiShona as a medium of instruction. 88% of the respondents agree that there is no adequate material to be used in teaching Mathematics using ChiShona. It is this situation that creates problems for the development of ChiShona as a language of instruction for school subjects. The respondents noted that without enough learning material written in ChiShona to be used in Mathematics there is little chance of implementing it as a medium of instruction.

4.2.1 Responses from questionnaires of College/University students only

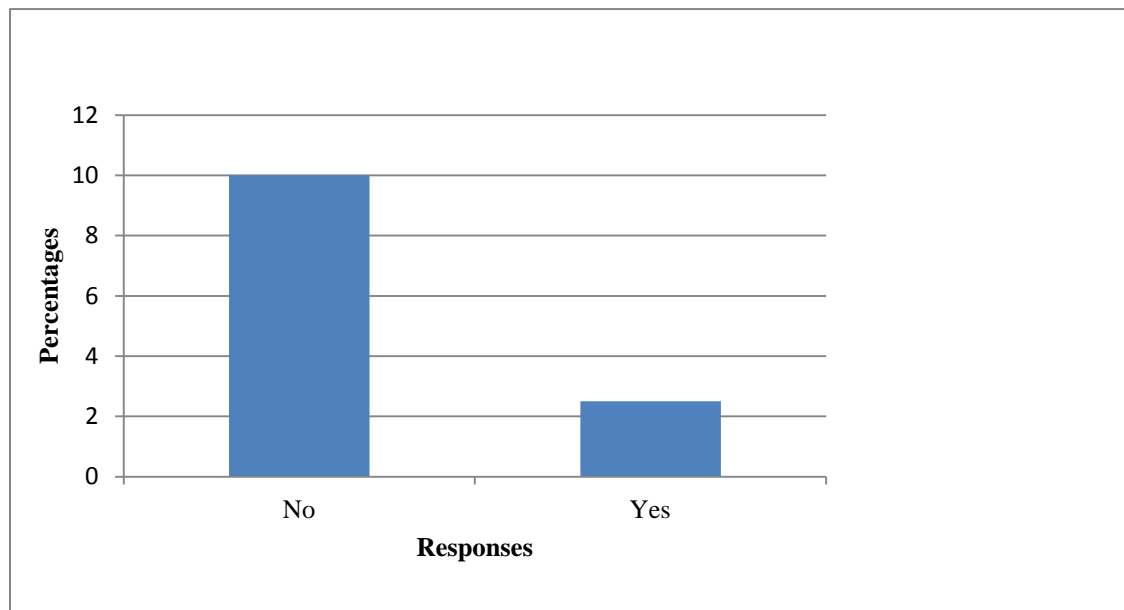
Question18. When you are being taught or examined in English, do you sometimes feel like expressing yourself in your mother tongue?

Table 4. 34 Responses on whether learners feel like expressing themselves in their mother tongues when they are being taught or examined in English. (N=200)

Response	Number of Respondents	Percentage
No	10	5
Yes	190	95
Total	200	100

Statistics displayed in table 4.34 above has been displayed graphically in figure 4.47 below.

Figure 4.47: Responses on whether learners feel like expressing themselves in their mother tongues when they are being taught or examined in English. (N=200)



95 % of the respondents admitted that when they are being taught or examined in English they feel like expressing themselves in their mother tongue. Only 5% of respondents do not feel like expressing themselves in their mother tongue when they are being examined in English. The mother tongue forms the basis of learning and facilitates understanding. The mother tongue is undoubtedly the language through which the child is inducted into this world. Question 18 sought to find out whether learners feel like expressing themselves in their mother tongues when they are being taught or examined in English.

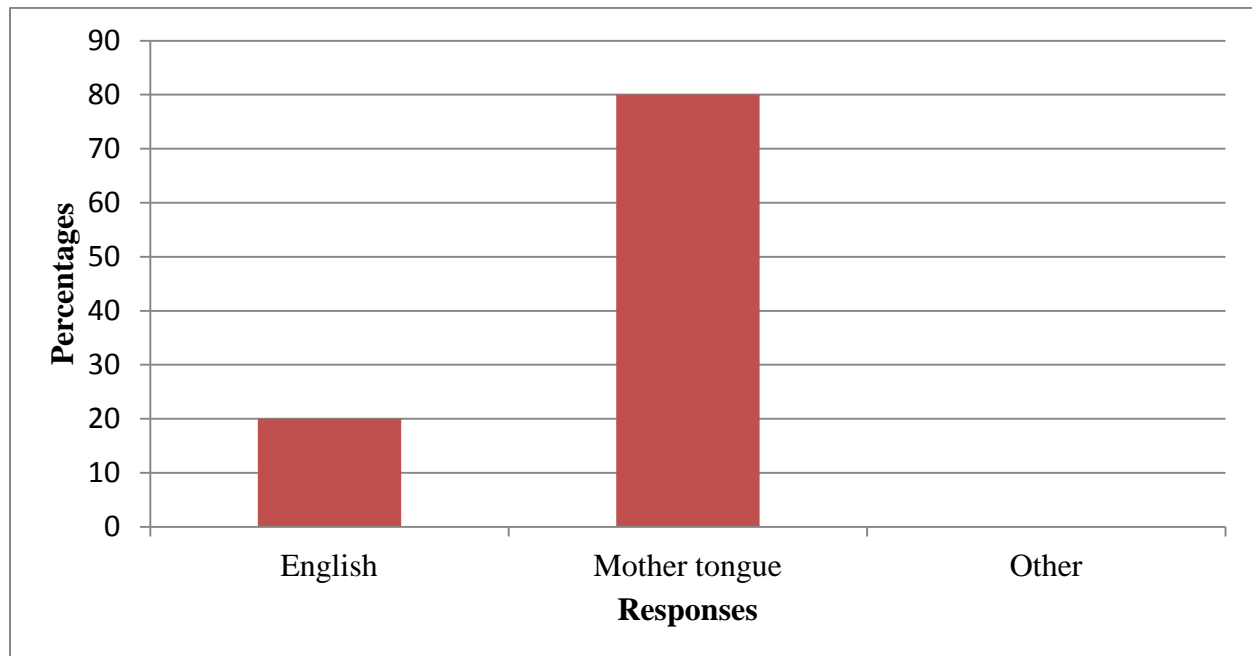
Question19. When you are brainstorming ideas preparing for an answer during a ChiShona lesson/examination, which language do you use?

Table 4.35: Responses on which languages would the students use when they are brainstorming ideas for an answer during a ChiShona examinations.

Response	Number of Respondents	Percentage
English	40	20
Mother Tongue	160	80
Other	0	0
Total	200	100

The information in table 4.35 above is also displayed in figure 4.48 below and the analysis of the statistics is done below the figure.

Figure 4.48: Responses on which languages would the students use when they are brainstorming ideas for an answer during a ChiShona examinations.



From the table 4.35 above 80% of the respondents are of the view that college/university students use their mother tongue when they are brainstorming ideas for an answer during a ChiShona examination. The mother tongue facilitates understanding, ensures creativity and interaction with our environment (Mutasa 2004). Students will not battle with two things, that is the language and subject matter. 20% of the respondents believed that learners would use English when they are brainstorming ideas for an answer during a ChiShona examination. Probably their argument is that English is a medium of instruction for school subjects and this includes ChiShona, and hence when learners answer examination they use the language of instruction for the subject under examination.

It is evident from figure 4.48 that the majority of the respondents (80%) believe that students use their mother tongue when they are brainstorming ideas for an answer during a ChiShona examination. The mother tongue is the basis of learning and thinking. The question intended to

find out how the mother tongue will facilitate the brainstorming of ideas when the learners are writing ChiShona examinations.

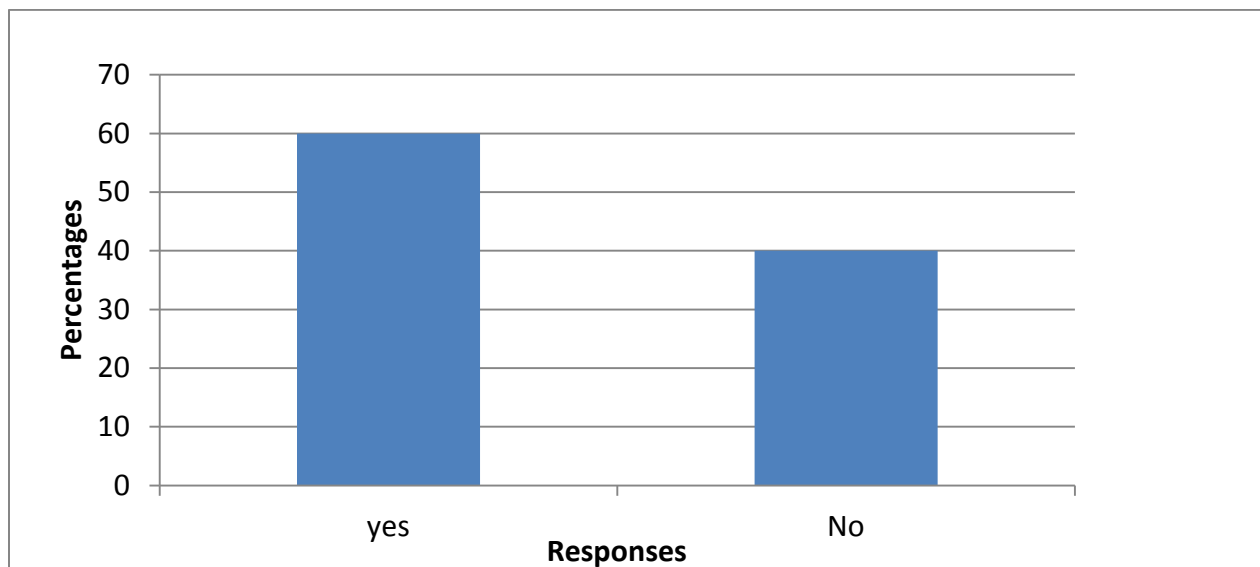
Question 20. Do you like being taught in a language that is not your mother tongue?

Table 4.36: Responses on whether the learners would like to be taught in a language that is not their mother tongue?

Response	Number of Respondents	Percentage
Yes	120	60
No	80	40
Total	200	100

The information in table 4.36 is also displayed in the figure 4.49 below.

Table 4.42: Responses on whether the learners would like to be taught in a language that is not their mother tongue?



From the above table 4.36, it is clear that 60% of the respondents like to be taught in a language that is not their mother tongue. English is the language which is being used as a medium of instruction in schools and is not a mother tongue for the respondents under study. The status of English in the world of communication enforces every student to think that it is the best language to be used as a means of instruction in schools. However 40% of the respondents indicated that they would like to be taught in a language that is their mother tongue. Probably this is due to the fact that the mother tongue as a language of instruction will enable the learners to easily understand the concepts they are being taught as they can relate it to their environment. It is easy and simple for one to learn and study anything in one's own language because one does not need to battle with the language first before the concepts. The purpose of the question was to establish the attitude of the respondents and how they feel if they are taught in a language that is not their mother tongue.

4.2.4 FINDINGS FROM INTERVIEWS

Twelve respondents have been sampled out, recorded and analysed individually. The selected represent a cross section of interviewees with different levels of educational and professional qualifications as well as different linguistics constituencies.

4.2.4.1 Parents Interview

Interviewee Number 1 (a parent from Mashonaland West whose highest educational qualification is 'O' Level, mother tongue is ChiShona and can speak English).

The interviewee agreed that language is a factor for economic and social development. She argued that ChiShona as a language of instruction can benefit the community through communication and interaction. She was quick to point out that in the world of work and communication it has limitations. She said "*Kana mwana wangu akapasa ChiShona pa 'O' level akafoira English haabatsiri chiro. Hapana anomuda pabasa kana kushandisha ChiShona chacho kunze kwenyika. ChiShona chino batsira muno muZimbabwe chete.*" (If my child passes ChiShona at 'O' level and fails English is useless. There is no one who can employ him and ChiShona cannot be used outside the country. ChiShona is only useful in Zimbabwe.). The interviewee further acknowledged that people are able to leave Zimbabwe and work in other

countries because of English. She argued that if our children just learn in ChiShona they will not be able to go into the Diaspora and bring us more money. There is need for our children to continue using English as a medium of instruction. English is a vehicle to the job market. There is nothing wrong in learning the master's language but there is also nothing wrong in learning our languages. She noted that English was useful for breaking the communication barrier between the indigenous language speakers of Zimbabwe such as IsiNdebele, ChiShona and Nambiya. From her view English is a neutral language, which enables people to communicate without using their ethnic languages. She further questioned that if we use ChiShona as a medium of instruction, what will happen to other indigenous African languages like IsiNdebele in our educational system? The responses from this interviewee are characterised by indecision and fear of change. On the one hand the respondent would like to preserve indigenous African languages yet on the other hand, she seems insecure without the use of English.

She admitted that it is possible to teach Mathematics from primary to university level using an African language as a medium of instruction in education. She pointed out that indigenous African languages have been used culturally in counting, addition and subtraction. "Is that not being mathematical?" she asked. She added that there is need to borrow some mathematical terms from other languages and write more books in ChiShona for Mathematics. The teachers need to be trained in that language so that they will not have problems in using it as a language of instruction in education.

The interviewee argued that politically and as lip service the leaders have always said that ChiShona will be made compulsory and the official language to be used in schools and currently our schools have been given ChiShona dictionaries that were written by Chimhundu Herbert. Her response is understood and justified considering that she is aware of the false promises politicians propose especially in language policies and development.

The interviewee recognises the power of English and put up a case against its discontinued use as a medium of instruction in our education system. She equates English to education and prosperity.

Interviewee Number 2: (a parent, farmer from Matabeleland North whose highest level of education is Grade 7, mother tongue IsiNdebele can also speak ChiShona and English).

The interviewee's response to the question of the relationship between language and socio-economic development was that language is a vehicle for development. The interviewee admitted that there will be problems if Zimbabwe decided to use ChiShona as an official language of instruction in education. He pointed out that this is neo-colonial linguistic oppression and these are the effects of the 'gukurahundi' (a form of civil war) in Matabeleland. "The Shonas in the Government are really planning to kill IsiNdebele, but let me assure you it will never die." He said. He pointed out that there was need to allow the indigenous African languages to be the languages of instruction in schools where the majority speakers use that indigenous African language as their mother tongue. He went on further to argue that it is better to use English as the language of instruction in Zimbabwe. English is globally accepted and it is a neutral language which does not fend tribalism among Zimbabweans. Indigenous African languages of Zimbabwe are not internationally recognised or popular. They are not commercially viable. These are languages best suited for our communication in farms. Knowledge acquired through ChiShona or IsiNdebele is limited. Learning in the indigenous language would limit our children in the labour market.

It is not possible to teach mathematics from primary level to university level using indigenous African languages as media of instruction. Mathematics becomes very difficult because of the language used to express ideas and concepts. There are no mathematical books written in indigenous African languages. The response indicates that interviewee is cognisant of the economic costs involved in taking African languages on board as media of instruction in mathematics.

With regard to teachers' preparedness to teach using indigenous African languages as media of instruction, the interviewee pointed out that there is need for these teachers to be trained in the indigenous African languages. He argued that the use of indigenous African languages as media of instruction is like use of concrete media because there is contextual application, cultural and environmental relevance. The interviewee further argued that use of indigenous African languages encourages the teacher to have environmental adaptation skills. For example a

ChiShona teacher needs to adapt to the linguistic skills of IsiNdebele if he/she is to teach in the Matabeleland environment where IsiNdebele is the dominant language.

.The interviewee is not aware of any efforts being made to promote the use and growth of ChiShona in Zimbabwe apart from politicians who want to use it as a divide and rule approach under the pretends of unity among people. It is important to note that the interviewee is sensitive on linguistic issues in Matabeleland as the people in this region feel threatened on the use of their language by foreigners.

Interviewee Number 3: (a parent from Masvingo, a former secondary school teacher by profession, highest qualification BEd degree, the mother tongue is ChiShona and can speak English

The former teacher was excited to talk about language planning issues in Zimbabwe. He was quick to point out that in his 35 years as a ChiShona teacher he was embarrassed to find himself teaching ChiShona in English, especially concepts on ChiShona grammar. This was due to lack of language policy that empowered the use of indigenous languages as media of instruction in schools. He commented that it was possible to teach all subjects using ChiShona as medium of instruction provided appropriate measures to develop its terminology were taken. In fact most teachers in schools mix indigenous languages and English when teaching subjects within the curriculum. "If ChiShona is the language that is spoken daily nationwide and even in class there is no problem in making it the official language of communication and instruction in schools." He argued. The main setback would be the provision of resources such as books and even to train all the teachers in ChiShona as this will need a lot of money.

In fact, indigenous languages should not be seen as stumbling blocks to national unity, national identity and national development but should rather be considered as resources for people's aspirations and full participation in national development.

The interviewee strongly agreed that there is a relationship between language and socio-economic development. Language is an important factor for development. He reasoned that in development we look at improving a people in terms of infrastructure, production, movement

that comes through networking with relevant stakeholders. His argument confirms that language is a resource as propounded by Bamgbose (1991) Batibo (2005) Mutasa (2004) and Uju (2008). The interviewee explained how ChiShona could be used as a tool of economic empowerment. The Chinese , Japanese and the British have used their own languages to develop themselves so why can't we?, he quizzed. He stressed that development agents should engage local people such as him through their indigenous languages if they are to convince the people about new initiatives and innovations. This allows room for people to adjust their beliefs, norms and values to accommodate new ideas.

He agreed that English should continue as a language of instruction in schools. He argued that English is a language that accommodates everyone for not everyone understands the language of the target group. Globalisation is synonymous with English. English is a universally accepted worldwide language of communication and it is the language at work places. It is a medium of instruction and research in many disciplines so it's difficult to do away with it.

On the issue about any efforts being made to promote the use and growth of ChiShona in Zimbabwe he argued that the government on its own is doing very little. Apart from the Education Act 1987 which allows vernacular languages to be taught from Grade 1 to 4 there is nothing tangible it has done. There is no clear language policy with regard to indigenous languages that has been put in place. However individuals and organisations such as ALLEX have done a lot to promote ChiShona. ZIMSEC has also allowed candidates to answer ChiShona Questions in ChiShona. That in itself promote the language.

The interviewee proposed that a language policy on the use of African languages as media of instruction should be put in place. There is need to develop terminology in African languages so that they could be used in the teaching of science subjects. Translation of books written in English can also alleviate the problem of inadequate resources such as books written in African languages.

Interviewee Number 4 (a parent from Manicaland whose highest qualification is 'A' level, mother tongue ChiShona and can speak English)

The interviewee agreed that language is a factor for development and that indigenous African languages can be used for socio-economic development. The benefits of using ChiShona as a medium of instruction is that it is a mother tongue instruction to the majority of children in Zimbabwe hence it facilitates understanding and ensures creativity and interaction with our environment technologically. This will enable us to develop it so that we can use it in the internet and computers. She explained that if indigenous African languages were used to communicate economic issues more people would be empowered economically.

Wanhw wazhinji wakashandisa mutauwo wedu weChiShona kubudikidza
nekudzidzisa wana masubjekts ose nacho zvinoita kuti tibudirire senyika
mumaIndustry, mumaschools ne economy yedu.

(If many people use our indigenous languages- ChiShona as a medium of
instruction in all subjects this will enhance our industry, schools and the
economy.)

The interviewee believed that it would be difficult to teach Mathematics from primary to university level using an indigenous African language as a medium of instruction. Mathematics has its own terminology which is not found in indigenous African languages hence it will not be easy to teach for example, topics like Logarithms and Exponentials in ChiShona. She suggested that Mathematics could be taught in ChiShona at Primary school level in order to provide a solid foundation for it to be at upper levels. But currently it's a non starter. The response by the interviewee indicates that she is hesitant to use an African language in the learning of mathematics.

The use of mother tongue instruction should be confined to the primary school as dictated by Education Act 1987. Mother tongue instruction would expedite things and level of comprehension to the primary school child. She further argued that Instead English should be allowed to continue to be used as the official language of instruction in Zimbabwe. To her English is an international language which is associated with the best. Using English will help children to access material which has been written in English. There is not much reading material in science written in African languages. Apart from the non availability of books written in

African languages, the teachers are not fully equipped to use the African languages as media of instruction.

There is no clear promotion on the use and growth of ChiShona in Zimbabwe. She explained that throughout her primary and secondary education she cannot remember any time when a policy was implemented to ensure the use of indigenous African languages in other subjects of learning. This response indicates that there is no language policy that enforces the use of indigenous African languages as media of instruction in schools. If the status and function of ChiShona has to be improved, the government should introduce a language policy that ensures that African languages are recognised as languages of instruction.

4.2.4.2 Teachers/Lecturers

Interviewee Number 5 (A university lecturer, an educationist who has long experience as a teacher, college lecturer, and is currently employed by Zimbabwe Open University; Bulawayo Region. His mother tongue is ChiShona and speaks IsiNdebele and English.)

The interviewee strongly agreed that there is a strong relationship between language and socio-economic development. The respondent argued that language forms the basis of communication and participation in economic and scientific development. He further argued that some languages have got limited vocabulary, which prevents them from being used to express scientific concepts. On the issue of using ChiShona as a language of educational instruction, the interviewee maintained that the use of indigenous African languages is like use of concrete media because there is contextual application, cultural and environmental relevance. The interviewee further argued that use of indigenous languages such as ChiShona, gives environmental adaptation skills. People can manipulate their environment and it creates a sense of confidence. He pointed out that language is a form of nationalism thereby authenticating nationalistic views; He admitted that English should continue as a medium of instruction in the education system because it's a global language of science, technology and the academics in general. English as a language is heavily entrenched in the education system, and has massive literature in almost every discipline and therefore a major international language of education and communication,

As an educationist who has experience in almost all the delivery systems of education, the interviewee pointed out that indigenous African languages such as ChiShona are not adequately developed to cater for scientific terminology involved in Mathematics. He was aware of the fact that mother tongue instruction cannot be done overnight because of lack of relevant literature for the different subjects and government's unwillingness to implement a language policy that enforces the use of indigenous African languages as media of instruction. This meant that mother tongue instruction should be introduced gradually beginning with the known to the unknown. He acknowledges that it is expensive but it must be done.

The interviewee pointed out that teachers in this country are not fully equipped to use African languages as media of instruction in education. The majority of the teachers are not trained to use African languages as media of instruction in teaching of subjects such as mathematics. African languages are still underdeveloped in Zimbabwe.

Interviewee Number 6: (a lecturer from Bulawayo, currently a college lecturer at a Teachers' Training College. For more than twenty years has been teaching ChiShona at United College of Education. Highest qualification Masters Degree in Linguistics, mother tongue ChiShona and can speak IsiNdebele and English)

The respondent exhibited clear knowledge and understanding of the role of language in development. She asserted that language is instrumental in that when you do things in your language you can lay claim to them and even enjoy the creation of your brains. The interviewee acknowledged the importance of indigenous languages such ChiShona and she was quick to point out that the languages are not developed to handle certain technological information and in teaching other subjects.

She argued that with time and proper planning indigenous African languages can be used in the teaching of Mathematics and other science subjects. She pointed out that the history of mathematics shows that mathematics is culturally infused in human languages and hence African languages have certain mathematical terms which are used in day to day language, for example in counting we have *motsi*, *piri*, *tatu china*, *shanu*, *tanhatu* (one, two, three, four, five, six). However there is need to develop mathematical terminology by borrowing from other rich languages and assimilate it in our own indigenous African languages. The interviewee was

cognisant of the fact that indigenous African languages have great potential. She argued that these indigenous African languages lack exposure but they can be developed.

She pointed out that her experience with student teachers shows that the use of mother tongue instruction in schools and colleges is greatly appreciated. To the college learner's mother tongue instruction makes them to understand clearly what is being discussed and can quickly relate it to the environment. Mother tongue not only facilitates learning to the young children but also to adult learners in colleges. The major problem of using it is that it is only confined to a particular group and might not be used elsewhere.

On the issue of continual use of English as an official language of instruction in education the interviewee agreed that there is need to let the children learn English in schools because that language is indispensable in international communication and work places. English has the advantage of having been a medium of instruction for years and is the most convenient language especially in this age of globalisation. African languages can be given a chance as media of instruction in schools but they are not so developed and lack technical terms that can be used for science and so forth. There are words or concepts that could totally lose meaning and give an unintended message if communicated in other languages other than English. On the other hand the teachers are not fully equipped to use ChiShona as a language of instruction in all subjects up to university level. There is need to develop and train the teachers on the indigenous African languages and also to create resource material such books written in indigenous African languages.

Currently organisations such as ALLEX and other African linguistic Associations are working towards the promotion of African languages such as ChiShona by creating materials written in ChiShona such as books, Dictionaries and novels that could be used in the teaching of other subjects using African languages. Research by different scholars in colleges is also helping the use and growth of ChiShona in Zimbabwe. However the government need to play its part and introduce a language policy that should enforce the use indigenous African languages as media of instruction in schools.

The arguments presented by the interviewee show that the respondent is flexible and objective. Such views are critical in informing language planners and policy makers. From this the researcher realised that indigenous African languages can be empowered if measures are put in place to enable indigenous African languages to handle issues in the public domain

Interviewee Number 7 (a primary school teacher from Mashonaland Central Province, a holder of a diploma in Education, ten years of teaching experience. Mother tongue ChiShona and can speak English.)

The interviewee admitted that there is relationship between language and socio-economic development within a nation. She agreed that language is a factor for development which provides communication within the economy.

On the issue of what problems would be encountered if Zimbabwe decides to use ChiShona as official language of instruction in education the interviewee pointed out that ChiShona does not have enough vocabulary to express modern scientific concepts and hence they rendered themselves unsuitable for use as media of instruction in education.

The interviewee agreed that it is possible to teach Mathematics up to primary using ChiShona as a medium of instruction. She felt that ChiShona is still underdeveloped and lacks in scientific terminology such that it cannot be used for mathematical instruction at university level. There is need to develop and provide resources such as textbooks and other learning aids written in ChiShona in order to use it as medium of instruction. In addition the teachers are ill equipped to teach mathematics using ChiShona as a language of instruction. However no indigenous African language at present has developed enough to be used as official medium of instruction at the level above the primary sector.

On the issue of using the mother tongue as a medium of instruction, the interviewee pointed out that most Zimbabweans especially learners would enjoy learning using their mother tongue but the problem is that there are so many different mother tongues in one class and to teach in different mother tongues at once is difficult.

The interviewee believed that English can effectively serve as an official medium of instruction in education. This view stems from their perception of English as the key to success, socially,

economically, politically and educationally. In addition she argued that English as is firmly entrenched as the language of government, business, the media, education training and specialized information as well as of upward social mobility and wider communication within and outside Zimbabwe's borders. However, the use of English as the medium of instruction in education disconnects the student's experiences. What they bring from home, whether it is an ethnic language or dialect is not built upon, instead it is wiped out and pupils have to start afresh with a 'clean plate'.

The interviewee pointed out that efforts are being made to promote the use and growth of ChiShona in Zimbabwe. She argued that Language Associations, Institutes and Organizations are playing a major role in promoting African languages through reworking orthographies, harmonization and terminology. Institutions and Organizations also continue to play a positive role in promoting the growth and use of indigenous African languages in Zimbabwe. There is need to compile terminological dictionaries for the different subject disciplines and expand the vocabulary of these languages so as to cater for new developments in science and technology.

Interviewee Number 8 (a secondary school teacher from Midlands whose highest qualification BEd degree; mother tongue is ChiShona and can speak IsiNdebele and English)

The interviewee agreed that language is a tool for effective communication and development. She argued that indigenous languages could be used as tools of economic empowerment by conveying economic ideas because not all indigenous people are conversant in English. She pointed out that language is used as a vehicle of communication in the official circles to foster people driven linguistic as well as economic development. The benefits of using ChiShona as a language of instruction in education include the development of our culture and improvement in the status of the language to a higher variety. It will also improve the teaching and learning situations in the schools. She added that the problem likely to be encountered in the process of using ChiShona as an official language of instruction is its inadequacy in scientific terminology and hence the teachers will have difficulties in using it to teach science subjects like Biology.

The interviewee felt that it is difficult to teach Mathematics from primary to university level using ChiShona as a language of instruction but conceded that it could be possible to teach

mathematics up to primary school level using ChiShona as a medium of instruction. Some mathematical terms do not exist in indigenous languages especially at advanced level or university level. This creates problems in the teaching of Mathematics especially on concepts of higher order.

The response from the interviewee towards the use of mother tongue instruction indicated that some Zimbabweans do not want their children to be taught using an African language. They prefer the use of English as a medium of instruction. English is a global language used in industry, government and in administration. Her response confirms the negative attitude towards the use of African languages as media of instruction by the majority of the respondents.

The teachers are not equipped to use indigenous African languages as media of instruction. There is need to train them towards the use of indigenous African languages in schools if ever ChiShona is to be used as a language of instruction. However he agreed that efforts are being made to promote the use and growth ChiShona in Zimbabwe.

4.2.4.3. College/University students

Interviewee Number 9 (a college student teacher from United College of Education whose highest qualification is 'O' level. Mother tongue is ChiShona and can speak English.)

The interviewee's first response was that he agreed that language has a relationship with socio-economic development. As a student teacher he felt that language provides a firm foundation for the development of the society and its economy. She pointed out that if ChiShona was to be used as a medium of instruction in education this would benefit the whole country in uniting the people under one language of instruction in education.

She argued that if Zimbabwe decides to use ChiShona as an official language of instruction in education this would create problems for other indigenous African languages. What would happen to IsiNdebele and Kalanga with regard to their social status if ChiShona becomes a language of instruction? ChiShona is a language for one particular group of people in Zimbabwe and making it a language of instruction would increase the chances of tribalism among members of the society. The interviewee overlooks the fact that there has to be policy to guide smooth operations. Languages have to be planned for economic utilisation.

The interviewee believed that it is not possible to teach Mathematics from primary to university level using ChiShona as a medium of instruction. She admitted that it could be possible to use ChiShona up to primary school level. There are difficult concepts that cannot be taught in ChiShona at university level unless the language has developed its own terms that could be used at a higher level. Her response is in agreement with other response from other respondents in the Teacher/lecturer category.

On the continual use of English as a medium of instruction, the interviewee advised that, English is the language at work places and is used internationally at conferences and hence there is need for children to learn using English as a medium of instruction. English is a symbol of status that also gives individuals confidence.

She pointed out that in this country the teachers are not fully equipped to use indigenous African languages as media of instruction. There is need to create a language policy that would enforce the use of indigenous African languages as media of instruction. More books written in these languages need to be created and allow more research to be done in these languages.

Interviewee Number 10 (a university student at Midlands State University studying linguistics, Mother tongue is ChiShona and can speak both IsiNdebele and English)

The interviewee was of the opinion that there is a relationship between language and socio-economic development. He believes that without language there is no communication and no development could be experienced within nations. He argues that there are socio-economic benefits of Using ChiShona as a language of instruction. Employment of ChiShona in education ensures rejuvenation and revitalisation of indigenous African languages and enhances their image when people realise that concepts and subjects formally reserved for English can be taught in ChiShona too. He added that Zimbabwe is characterised by linguistic diversity and hence the use of ChiShona as an official medium of instruction would create problems for other indigenous African languages leading to their demise. Some minor languages like Nambya might die a natural death. Monopolising ChiShona as a language of instruction would greatly disadvantage IsiNdebele which is another major indigenous African language in Zimbabwe.

The interviewee admitted that it is possible to teach Mathematics using an African language as a medium of instruction from primary to university level provided that the indigenous African languages have been developed to accommodate scientific terminology that is used in Mathematics. However this could be done by borrowing linguistic terms from rich and well developed languages like English. His responses acknowledge the possibility of developing ChiShona to the levels of high variety languages. He argued that mother-tongue tuition ensures linguistic accessibility to studied material, helps to develop critical thinking and to foster effective communication. This is a positive attitude towards the use of mother tongue instruction. Even Mutasa (2003:306) supports this when he says mother-tongue instruction improves learning achievements, provides better adjustments to school, cultural preservation and self confidence in children. Learners are likely to grasp learning concepts much easier if educational materials are written in local languages and concepts taught through the mother tongue.

The interviewee acknowledged that ChiShona lacks appropriate terms to be used in scientific technology and that it is difficult to translate certain English terms to ChiShona in some subjects like Mathematics and Science. In such a situation there is need to let English being used as the official language of instruction in Zimbabwe. The teachers are better equipped to teach in English than in an indigenous African language.

There are deliberate efforts to boost the ChiShona literary heritage by organisations and individuals the interviewee responded. The African Languages Lexical Project (ALLEX) is working tirelessly on indigenous languages' lexicography and language promotion. They have published monolingual dictionaries in ChiShona and IsiNdebele. However the government should play its part and encourage research on the development of a policy to enforce the use of African languages in Zimbabwe.

Interviewee Number 11 (a student at Bulawayo polytechnic studying Computers. Highest qualification is 'A' level. Mother tongue is IsiNdebele but can speak ChiShona and English)

The interviewee agreed that there is no development that can be done without language being involved. Language and socio-economic development are intertwined. The use of ChiShona as a

language of instruction in education might benefit one group of people at the expense of the other. It is the Shonas who will benefit and disadvantage the Ndebele. This response highlights the problem of feuding tribalism if language planning is not done properly.

She pointed that it is possible to teach mathematics from primary to university level using an African language as a medium of instruction in education. 'If the Japanese and Chinese have developed their languages to be used in official business, Mathematics and Computers, why should we not?' she asked. In fact these days the internet is using ChiShona and IsiNdebele as some of its languages under Google search engine. The use of indigenous languages as media of instruction in education will definitely make African people in Zimbabwe feel proud of being African and will also make them become less and less dependent on European languages thus enhancing their participation in national development.

The interviewee argued that her colleagues at college believed that the use of mother tongue as a medium of instruction ensures that learners are taught in a language spoken by a large number of people, which is useful in local and national life and the language which is familiar to both learners and teachers. However she was concerned about which African language would be used as mother tongue instruction. She did not like the dominance of ChiShona as it was emerging to be a language of oppressing IsiNdebele.

She pointed out that English should continue as language of instruction in Zimbabwe as it is a language which provides them with a more profitable future in the world of employment. From her response English is seen as performing high functions than ChiShona/IsiNdebele which does not render a person employment.

The teachers are not fully equipped to teach using an indigenous African language as a medium of instruction in education even if most of them regularly use the vernacular language when teaching Computers at College. There is need to develop the indigenous African languages to the extent that linguistic terms can be created to be used in other languages and let the teachers be trained in those areas which they feel inadequate and inefficient.

The interviewee was not aware of any efforts being made to promote the use of ChiShona or any African language in Zimbabwe to the level of using it as an official language of instruction in Education.

Interviewee Number 12 (a student teacher at Hillside Teachers College, Bulawayo, being trained as an English and ChiShona secondary school teacher, Highest qualification is 'A' Level, mother tongue is ChiShona.)

Language is a vehicle of communication that enhances development within the society the interviewee argued out. Economic growth can be achieved through communication and interaction of different socio-economic factors. Using ChiShona as a language of instruction in education will benefit the majority of the population as it is spoken by more than 80% of Zimbabwe's population. Education would become accessible to many. English medium restricts learners' performance he added. Learning becomes easier if concepts are taught in one's own language.

In response to the issue of the problems that are likely to be encountered if Zimbabwe decides to use ChiShona as an official language of instruction in education, she pointed out that ChiShona may not be popular media of instruction for Medicine, Mathematics, Science and other subjects at present because of the lack of terminology and literature.

The interviewee felt that it is a positive move to use the mother tongue as a medium of instruction in education. Teaching and learning cannot take place without the use of one's mother tongue. As correctly pointed out by Ayo Bamgbose (1991) language is the most important factor in the learning process, because the transfer of knowledge and skills is definitely through the spoken and written word. Through the use of mother tongue instruction, the children can express themselves; teachers can diagnose what has been learned, what remains to be taught and which learners need further assistance. She added that mother tongue instruction allows children to be themselves and develop their personalities as well as their intellects.

English is a language for business at work places and it is a popular medium of instruction. It allows one to communicate with billions of people all over the world. Hence the interviewee

purports that it is difficult to get a decent job without the knowledge of English. In Zimbabwe English is a do or die situation which calls for the survival of the fittest. You are not a full 'O' level certificate holder without having passed English. English has grammatical terminology that ChiShona does not have and hence it supplements ChiShona in the teaching of ChiShona grammar. Major texts being used to teach ChiShona grammar are in English and translation into ChiShona causes confusion. Hence there is need to let English continue as a language of instruction in Zimbabwe up until ChiShona is fully developed to a High variety language.

Interviewee number 12 views that efforts are being made to promote the use of ChiShona in Zimbabwe. The development of the first monolingual dictionary in ChiShona by the African Languages and Literature lexicography (ALLEX) project is a step in the right direction. The dictionary has incorporated major and minor dialects of ChiShona and this helps the teachers and students to spell out the words correctly. However not everyone in Zimbabwe and currently not all schools can afford these texts and learners have no access to them. This undermines the development of ChiShona as a language. She added that it is important to note that ZIMSEC has taken steps in the right direction in developing ChiShona as a language of instruction. It has made it compulsory that all examination papers for ChiShona and IsiNdebele be answered in ChiShona or IsiNdebele respectively.

4.3 CONCLUSION

The results presented in this chapter show that it's feasible to use ChiShona as a medium of instruction in the teaching of Mathematics to primary school as evidenced by the practical teaching experiment (see Section 4.1). From the questionnaire and interviews the parents, teachers, lecturers and learners still believe that only English can effectively serve as an official medium of instruction in education. This view stems from their perception of English as the key to success, socially, economically, politically and educationally (Magwa 2008). From the findings of the study ChiShona is still underdeveloped and continue to be downgraded particularly in the education system and in public. It is apparent in these research findings that the attitudes of some parents, teachers and lecturers towards the use of indigenous languages in schools pose as a very big challenge to mother tongue medium education.

This chapter presented data in graphic form. The statistics also show that use of indigenous languages by statistics in some tables and graphical presentation is a pointer to a need to create a language policy that promotes all languages spoken in Zimbabwe. This will encourage further researches and development of the indigenous languages. The respondents of the questionnaires and interviews confirmed that the use of mother tongue as a medium of instruction ensures that learners are taught in a language spoken by a large number of people, is useful in local and national life and facilitates learning to both learners and teachers. Study findings have also shown that despite the negative attitudes displayed by speakers of indigenous languages, Language Associations, Institutions and Organizations continue to play a positive role in promoting the growth and use of indigenous languages in Zimbabwe.

Chapter five is an analysis and discussion on research findings. It links specific questions raised in chapter four to a commentary on the views people expressed about the necessity to use ChiShona as a languages of instruction in the teaching of Mathematics in primary schools in Zimbabwe.

CHAPTER 5

DISCUSSION OF THE RESEARCH FINDINGS

“I know that most men, including those at ease with problems of the greatest complexity, can seldom accept even the simplest and most obvious truth if it be such as would oblige them to admit the falsity of conclusions which they have delighted in explaining to their colleagues, which they have proudly taught to others, and which they have woven, thread by thread, into the fabric of their lives”

(Leo Tolstoy, 1828-1910)

5.1 INTRODUCTION

The focus of this chapter is to discuss findings from the practical teaching experiment and responses to the questionnaire and interviews. This discussion is linked to other scholarly works that have been consulted. Findings show an inclination towards the English language. This expresses the dominance of the language and the high status it enjoys over indigenous languages such as ChiShona. There were interesting findings from the practical teaching experiment and the responses given by respondents in their comparison of the languages and usage. Also emerging from the responses is the combative mood expressed by the respondents and the eagerness of engaging in language policy issues related to the use of ChiShona as a language of instruction in education. In short the area of language use is a heavily contested zone once it is subjected to debate.

In this chapter each question raised in chapter 4 will be analyzed, discussed and a comparison of response to other questions will be made. Where necessary, as it appears, the responses are interrelated and seem to stem from the same mindset of respondents. The chapter deliberately comments on the patterns of responses that were captured in chapter four. The argument advanced in this chapter is that the responses in chapter four demonstrate how people think about the use of ChiShona as a medium of instruction in the teaching of mathematics in primary schools.

The first section focuses on the analysis and discussion of the practical experiment of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools. This

section is followed by analysis and discussion of the mother tongue instruction and education. The attitudes of different people such as the parents, teachers/lecturers and college/university learners towards the use of African languages as media of instruction in primary schools are discussed analytically. The rest of the chapter explores how to promote ChiShona as a medium of instruction in education.

5.2 THE PRACTICAL EXPERIMENT ON THE USE OF CHISHONA AS MEDIUM OF INSTRUCTION IN TEACHING MATHEMATICS

Section 4.1 of chapter four of this study focused on the practical teaching of Mathematics using ChiShona as a language of instruction. The experiment intended to have firsthand experience of teaching Mathematics using ChiShona, an indigenous language, as a medium of instruction. This provides answers to the feasibility of using ChiShona as a medium of instruction in the teaching of Mathematics to primary school children and establishes how the learners develop the concepts of Mathematics in ChiShona. The intent of an experiment is to compare the effect of one condition on one group with the effect a different condition has on a second group, or to compare the effect of different conditions on the same group. Typically, the research makes comparisons between subjects who have had and others who have not had the imposed conditions (Schumacher, 1993:32).

This experimental design involved a pre-test and post-test comparison group approach in the practical teaching phase. A Grade 4 class at Ross Camp primary school was divided into two equal but opposing groups and used for the experiment. From Table 4.2, 75% of the Grade 4 learners selected for this study use ChiShona as their mother tongue and 10% use IsiNdebele as their mother tongue. All the learners in Group A speak ChiShona as their mother tongue and learners in Group B have different mother tongues but all understand and can speak English. Group A was taught mathematical concepts of Addition and Subtraction using ChiShona as a medium of instruction and Group B used English as the medium of instruction to learn the same concepts of Addition and Subtraction.

The responses with regard to the practical experiment are presented below and analysed.

5.2.1 Group A: using ChiShona as a medium of instruction in learning Mathematics.

The findings in chapter four indicated that if Mathematics is to be taught in ChiShona it means the teaching material should be readily available in ChiShona. Lack of teaching material for Mathematics written in ChiShona was a barrier in this study. Mathematical jargon and other important terms were borrowed or translated into ChiShona from English. Translation of mathematical terms from English to ChiShona enabled the Grade 4 learners to understand the concepts in their mother tongue. This is supported by Ranaweera cited in Brock-Utne who says:

The transition from English to the national languages as the medium of instruction in science helped to destroy the great barrier that existed between the science-educated elite and the non-science-educated masses, between science itself and people. It gave confidence to the common man that science is within his reach and to the teachers and pupils that knowledge of English need not necessarily be a requisite for learning science. The value of mother-tongue instruction is literally incontestable (Brock-Utne, 2000:153).

An analysis of the pre-test given to Group A (see Table4.4) shows that seven of the Grade 4 learners in Group A did not do well and the rest passed the test. The pre-test was given to test the assumed knowledge of addition and subtraction. The seven learners who failed the test had problems of understanding some terms that were translated into their mother tongue from English and this was their first time to see them in a given mathematical test. The medium of instruction is viewed to have a strong bearing on how the learner adjusts to primary school life as it either provides a smooth handover-takeover from the home to the school system or a rough grab that might result in frustrating the learner.(Prah, 2005:26).

The teaching of the concepts of Addition and Subtraction (**Kusanganisa neKubvisa**) involved the use of teaching aids like sticks and stones, and even playing games such as ‘Nhodo’ to explain the concepts of counting and addition(see Appendix E). The Grade 4 learners in Group A interacted freely through the use of their mother tongue. With regard to this, Nyota and Chikodzi

(2010) noted that rural learners use their everyday experience to illustrate mathematical concepts. Even though English is the main medium of instruction, teachers in the rural areas use ChiShona to explain mathematical concepts and activities whenever possible and such explanations are more extensive during the introduction of new learning concepts (Nyota and Chikodzi, 2010). The continued use of ChiShona as a medium of instruction in lessons of Group A facilitated their understanding as they could easily relate the concepts to their environment. This is evidenced by the positive answers they gave in their given exercises (see Table 4.5 for exercise results for Group A). The results of the post- test for Group A (see Table 4.4) show that only three learners (05A, 15A and 16A) failed the test and most of those who passed have shown an improvement in their performance. Learners such 04A performed dismally at the pre test and did very well on the post test.

Learners 15A and 16A had attitude problems that affected their performance and participation. They felt that their parents did not want them to learn Mathematics using ChiShona as this would never help them in future. One of them said *“Kudzidza Maths neChiShona zvinobatsirei? ChiShona chinodzidzisa ChiShona, kwete mamwe masubjects. Zvinoti dzikisira. Baba havazvide.”* (Does it help to learn Mathematics using ChiShona? ChiShona should be used to teach ChiShona, and not other subjects. It lowers our social status. My father does not like it.) Attitudes that English is more important than ChiShona is passed on to children by parents who tell children that English provides educational and employment opportunities in the future (Nondo1990). Thus children develop negative attitudes towards the first language which they might then regard as less important (Bamgbose, 1991; Robson, 1996). The group average mark for Pre test was 55.9% and the average mark for the Post test 67.9%. All in all, the learners in Group A showed an improvement on their performance after they had been taught using ChiShona, their mother tongue, as medium of instruction in learning Mathematics at Grade 4 level. However Group B showed greater improvement from 53% to 66.7%.

The language of instruction or the language in which education is principally conducted, is one of the most far-reaching and significant features of any education system. In Zimbabwe, ChiShona is not currently a feature of the education system. The use of mother tongue instruction is supported by scholars among them Chiwome and Thondhlana (1989), Afolayan (1976),

Bamgbose (1976), Adegbija (1994) and Mutasa (2004) who emphasize that mother tongue education ensures learners' performance at the maximal ability and psychological support. Children who begin their education in mother tongue make a better start, demonstrate increased self – confidence and continue to perform better than those who start school in a foreign language. Mother tongue promotion in school helps develop not only the mother tongue but also children's abilities in school. On these grounds UNESCO also recommended that mother- tongue instruction should be implemented in a school. At the UNESCO Meeting of Experts it was stated that:

On educational grounds, we recommend that the use of the mother tongue be extended to as late a stage in education as possible. In particular, pupils should begin their schooling through the medium of mother tongue, because they understand it best and because to begin their social life in the mother tongue will make the break between home and the school as small as possible (UNESCO, 1953: 47 – 48).

Where the language of instruction is the mother tongue, it affirms the developmental capacity of the mother tongue to grow as a language of culture, science and technology (Magwa, 2008). It further provides confidence in the learners and greater understanding of what they learn. When a mother tongue, such as ChiShona, is used as the language of instruction, it becomes an instrument for the cultural and scientific empowerment of people.

5.2.2 Group B: using English as a medium of instruction in learning Mathematics.

The teaching of Mathematics from primary to university level in Zimbabwe is done using English as a language of instruction. At Grade 4 level learners switch the medium of instruction from ChiShona to English as required by the Education Act of 1987. According to The Education Act of 1987 the fourth grade uses English as the medium of instruction. ChiShona or IsiNdebele are taught as subjects on an equal-time-allocation basis as the English language. Group B learners for the practical teaching experiment was taught Mathematical concepts of addition and subtraction using English as a medium of instruction. English is perceived to be more powerful and to provide access to information and technology. English is the language

which is being used as a medium of instruction in schools and is not a mother tongue for the respondents understudy. Because of its status in the world of communication every learner would want to be taught in that language.

An analysis of the pre-test given to Group B (see Table 4.6) shows that eight of the Grade 4 learners in Group B failed the test. The average Group mark was 53% and 66.7% for the pre-test and post-test respectively. Learner 04B passed the pre-test (64%) and failed the post-test (48%). Probably the learner (04B) had problems of understanding mathematical concepts from simple to complex or from the known to the unknown. Learner 05B failed both the pre-test and the post test. Five learners; 01B, 06B, 07B, 13B and 16B scored highly in the post test, each of them getting more than 80%. Learner 013B showed tremendous improvement from having failed the pre-test (42%) did very well in the post-test (84%). Some learners whose home backgrounds encouraged communicating in English even at home had no problems in understanding mathematical concepts being taught in English as a medium of instruction. Such learners showed a clear understanding of the concepts being taught in English.

During the lessons some learners from backgrounds where English communication is nonexistent had difficulties in communicating in English. This even forced the teacher to use their mother tongue (ChiShona) in giving illustrations, demonstrations and instructions for them to understand the mathematical concepts being taught. This change of media of instruction is even supported by Mackey (1984) who argues that mother tongue instruction should be promoted to enhance concept formation and include a majority of the indigenous learners who grapple with English. According to Chivhanga (2008), the ChiShona learners use English from Grade 4 as the medium of instruction and one subject that they perform badly in is Mathematics. Language is one of the variables leading to the high failure rate. One proof to this pathetic learning situation is that Mathematics teachers have been observed to code-switch a lot from English to ChiShona as they attend to their classes (Nyota, 2009).

The statistics in Table 4.7 indicate the marks that the learners got in their given exercises. The learners showed an improvement in all the three exercises they were given during the lesson. Learner 07B was outstanding as she answered all the exercises correctly getting 100% mark. In

Exercise 1, learners 03B, 05B, 08B and 11B did not score 50% and above but improved gradually in other given exercises. Exercise 3 was well answered by all the learners in Group B. The exercises were given to check how the learners were mastering the concepts of addition and subtraction being taught in English.

5.2.3 Comparison of the performance of Group A and Group B learners in the practical teaching experiment.

Statistics in Table 4.8 in chapter four indicated that the average mark for Group A pre-test was 55.9% and for Group B was 53%. The averages for the post-tests were 67.9% and 66.7% for Group A and Group B respectively. Comparing class averages for the pre-tests and post-tests (see Table 4.8), it is clear that both groups performed well and showed an improvement from their pre-tests group average as compared to the post-test group average. As alluded to earlier, some of the Group B learners have a good English background. Group A performed better than Group B in both the given tests by smaller margin. This is because that some of the learners in group B have a good English background. The use of the mother tongue instruction (ChiShona) could have impacted positively in the teaching of Mathematics to Grade 4 learners. The use of ChiShona as a medium of instruction in teaching Mathematics is feasible and the learners could understand the mathematical concept of addition and subtraction in ChiShona without problems.

The language used for education purposes should be a language capable of opening communication barriers. If a language creates a host of “misunderstood” then the “barriers” cannot be easily cleared (Magwa, 2008). The use of mother tongue as a medium of instruction ensures that learners are taught in a language that they are familiar with, is useful in local and national life, can be related to their environment and experience of their day to day life.

Chaudron (1988) asserts that in a learning situation where only the L2 is used as a medium of instruction, students face problems because the students have to make sense of the instructional tasks which are presented in the second language.

5.3 MOTHER –TONGUE INSTRUCTION

Question 5 from Chapter four for this study was: *What is the name of your mother tongue?* Responses in Table 4.15 show that 66% of the respondents use ChiShona as their mother tongue and that there is a strong need to have ChiShona as a language of instruction in subjects being taught in primary schools of Zimbabwe. To the respondents the use of a common language spoken at home in schools eludes the inferiority that is associated with ChiShona because English is also indigenous in Britain in schools. ChiShona is an indigenous African language widely spoken in Zimbabwe by 75% of the total population. This is also confirmed by the responses from Question 4 which showed that 54% of the respondents use ChiShona at home and 11% use English at Home. The use of English at home is aimed at improving proficiency in English so that children will start at a better footing when they go to school. It is interesting to note that none of the respondents use English as their mother tongue yet parents encourage its use at home. This is indicative of the people's positive attitude towards English and inversely, towards ChiShona their mother tongue.

Responses Question 6 from chapter four shows that English is widely used in schools, colleges and universities as the language of instruction in the teaching of Mathematics. A total of 87.3% parents teachers/lecturers and learners indicated that English is used as a medium of instruction in the teaching of Mathematics. The categories of ChiShona and IsiNdebele had 49 (6.9%) and 41(5.8%) respondents respectively who indicated their use as languages of instruction in schools. This is expected because English is the official language of instruction in schools, colleges and universities of Zimbabwe.

With regard to the language for teaching Mathematics respondents said that English language still enjoys high status as the medium of instruction in the teaching of Mathematics over ChiShona. 57% of the respondents indicated that English should be used as a language of instruction in the teaching of Mathematics. 55.8% teachers indicated that ChiShona should be used as medium of instruction in the teaching of Mathematics in schools. The teachers are enlightened on the problems learners face when learning Mathematics and hence, their response

suggests that there is need to use indigenous African languages in the teaching of subjects such as Mathematics in schools of Zimbabwe. In addition the responses from the interview question which sought to find out if it is possible to teach Mathematics from primary to university level using an indigenous African language as a medium of instruction showed that the respondents felt that ChiShona is not a popular medium of instruction for medicine, maths and science. The reason given is lack of terminology and literature. This View implies that ChiShona is underdeveloped. However, in Table 4.22, 80.7% of the respondents are happy if all subjects from primary to university level were studied using indigenous African languages as media of instruction. They argued that ‘If the Japanese and Chinese have developed their languages to be used in official business, Mathematics and Computers, why should we not do the same in Zimbabwe?’ Undoubtedly, this paints a positive attitude towards the development and use of indigenous African languages.

Regarding the use of mother tongue to express and explain educational and scientific concepts in the teaching of Mathematics in primary schools in Question 10, the respondents (44.4%) believe that their mother tongue can express and explain educational and scientific concepts. The reasons they advanced for this included:

- Mother tongues have the capacity to communicate just like English and hence can explain any scientific concepts provided terms to represent the scientific or mathematical ideas are created.
- Learning of subjects such as Mathematics involves the use of mother tongues for learners to understand better. Culturally it promotes and develops our cultural heritage internationally.
- Mother tongue has mathematical concepts used on our day to day living such as counting, addition and subtraction which can be done in one’s vernacular language.

ChiShona may not be popular media of instruction today for Mathematics, Medicine, Science and other subjects because of terminology and literature. What this connotes is a dire need of some kind of renaissance of ChiShona pertinent to that of Swahili which is a success story in Tanzania.

In his research Mutasa (2004) had respondents who also pointed out that as far as possible students should be taught in their mother tongue. The reasons they raised for the use of mother tongue was that it becomes easy and simple for one to learn and study anything in his/her own language because he does not battle with the language first before the concepts. Mother tongue accelerates learning and injects pride and independence. Rubagumya (1990) has shown in his research studies that school students admit that they understand their teachers better when teaching is carried out in Kiswahili, the majority of them still think that English should be maintained as the medium of instruction. In a similar study carried out by Roy-Campbell (1992) it was noted that many students resisted the change of language of instruction from English to Kiswahili because they assumed that English was the best medium for science and technology, even though Kiswahili is the de facto medium of teaching in many schools. Such an anomaly can only be viewed as an indication of the perceptions of where power is located in African societies.

Respondents for both the questionnaire and the interview strongly agreed that the use of ChiShona, the mother tongue, will further promote better understanding between the home and the school. Even if the government decides to use ChiShona as an official language of instruction in education, the parents will be in a better position to understand the problems their children have at school and in some measure help the child in his or her education. According to Mutasa (2004) children benefit most emotionally and cognitively if information in the early stages of primary education is delivered in the mother tongue. In the interviews, parents and teachers expressed that the shock children undergo in passing from home to school life is so extensive that everything possible should be done to reduce it, particularly where modern methods of infant teaching have not yet been assimilated by the school.

With regard to the continuous use of English as the official medium of instruction in Zimbabwe all the interviewees confirmed that English should continue to be used as a language of instruction in education. This is validated by a cumulative 71.9% (see Table 4.27) of the respondents to the questionnaire who agreed the continued use of English as a language of instruction was preferred. From the responses, English language is seen as a language for prosperity. They argued that English is spoken internationally and is used at the work place and that it is the world's lingua franca. Another 57% in Table 4.17 and 77.2% in Table 4.18 of the

respondents provide supportive evidence that English is the preferred language of educational instruction. Therefore English is maintained as a medium of instruction in schools. Arguments such as the continual use of English as a medium of instruction in schools because it is a neutral global language simply show that the respondents are not receptive to change. Mavesera (2009:153) argues that there is no language that is neutral in terms of the cultural milieu. Respondents with this view may not have noticed the fact that some developed countries like Japan and China have developed their languages to the extent of competing as global giants in spite of them not using English as a medium of educational instruction. China is recognized internationally in the field of complementary medicine with acupuncture, acupressure, and Chinese herbs; all developed using the Chinese language

According to Mavesera (2009) the linguistic profile that presents English as the official language, ChiShona and IsiNdebele as two national languages and the rest of the Zimbabwean indigenous languages as minority languages arises from an historical arrangement of the colonial era. Some interviewees supported this view when they responded to the question ‘*What are the socio-economic benefits of using ChiShona as a language of instruction in education?*’ As a result African languages such as ChiShona and IsiNdebele have not been used as media of instruction in education

5.4 ATTITUDES TOWARDS THE USE OF CHISHONA AS A LANGUAGE OF INSTRUCTION IN EDUCATION

The success of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools depends on people’s attitudes and will to actually implement it. Language attitudes are best appreciated by closely examining their origin. An attitude is an organized predisposition to think, feel, perceive, and behave toward referent or cognitive object an enduring structure of beliefs that predisposes the individual to behave selectively toward attitude referent (Taylor et al., 1997: 130; Ajzen, 1988:4; Kerlinger, 1986: 453; Kosslyn and Rosenberg, 2006: 738). Attitudes are the “very general evaluations that people hold of themselves, other people, objects and issues” (Tesser, 1995: 196). In short, an attitude is a disposition to respond favourably or unfavourably towards an object, person, institution or event. Attitudes locate objects of thought on dimensions of judgment (McGuire, 1985 in Lindzey and Aronson, 1985).

Such a disposition can be towards language (referent object) that may be viewed favourably or unfavourably. An attitude is in fact a belief that forms a capacity that is directed towards certain aspects in human life. Attitudes are thus, “organizations of beliefs about things out there” (Kerlinger, 1986: 456) that predispose individuals to behave or respond in a certain manner towards an attitude object. The said language attitudes can reside in our cognitive, affective and / or behavioural realms. Attitudes take a positive or negative direction with very few cases being neutral (Kosslyn and Rosenberg, 2006). Since attitudes to language form a belief (in individuals) in relation to the referent object, their effect on language policy change cannot be taken for granted since they play an important role leading to either acceptance or perspective of the parents rejection of language policy change. It is imperative that language attitudes of users be taken into account before change in the language of instruction is effected.

There are several significant questions that asked of the respondent to provide answers which showed their attitudes towards the use of ChiShona as medium of instruction in education from the perspective of parents, teachers/lecturers and learners. The first question from chapter four in this study was Question 8:

Which language(s) is mostly likely to give you power and prestige in Zimbabwe if you speak it?

From Table 4.18 a total of (77.2%) of the teachers/lecturers, parents and learners indicated on the questionnaire that English was the language of power and prestige in Zimbabwe and that English is the official language of instruction in the education system of Zimbabwe. Hence, English dominates other African languages as evidenced by the responses of the parents, learners, teachers and lecturers. One of the reasons that these respondents opted for English was that one becomes globally marketable in industry and commerce. Such a view would not support the use of ChiShona as a language of instruction in Education. Views that English is more important than ChiShona have been passed on to children by parents who tell children that English is prestigious and provides educational and employment opportunities in the future (Nondo, 1996). The children develop negative attitudes towards the indigenous languages which they regard as less important (Bamgbose, 1991; Robinson, 1996; Adegbija, 1994). This is supported by a Grade 4 learner who echoed his father’s sentiments or reaction during the teaching experiment by saying, “*Kudzidza Maths neChiShona zvinobatsirei? ChiShona chinodzidzisa ChiShona,*

kwete mamwe ma subjects. Zvinoti dzikisira. Baba havazvide.” (Does it help to learn Mathematics using ChiShona? ChiShona should be used to teach ChiShona, and not other subjects. It lowers our social status. My father does not like it.)

Another significant question on attitudes from the interviews was: *What do you think is the attitude of Zimbabweans towards mother tongue instruction?* The respondents to this question believe that most of the Zimbabweans would prefer English as the medium of instruction in education. Most interviewees felt that English offers them better opportunities for employment compared to ChiShona. However, English was seen as empowering them to compete well in the global village. English guarantees them “access to the system and equal opportunity to participate in it” (Adegbija, 1994: 3). As such, changing to indigenous languages such as ChiShona is viewed as a direct threat to their (respondents) perceived job opportunities, thus attracting negative attitudes. The aforementioned observations led to the conclusion that language attitudes of users, whether cognitive, affective or behavioural, matter much in language planning. Unless and until attitudes change favourably towards the proposed language, users will continue to reject the intended language innovation.

In the then Rhodesia (colonized Zimbabwe), the colonialists legislated English language as the only medium of instruction in schools. The chain reaction leading to the subsequent dominance of English in the school curriculum was set off in 1903 following the first education ordinance (Atkinson, 1972). Through a subtle tutelage Africans in Zimbabwe came to regard English, and indeed associate it with knowledge, goodness, sweetness and an array of other positives. Those who could speak it received commendation and were made to feel that they were far better than those who could not speak it. For most Africans, English became synonymous with knowledge and education. Speaking good English was, wrongly of course, seen as an indicator that one was educated. English was thus, associated with good life and as such, attitudes towards it became favourable. Those unable to speak English were regarded as backward. This is supported by the responses given in Table 4.27 where 46% of the respondents strongly agree that they would prefer English to continue as a medium of instruction in education. This seems to emanate from the notion that a well “schooled” child is one who is conversant and fluent in the English language. English is therefore, viewed as language for prosperity.

Rwambiwa (1996), Gatawa (1998) and Gudhlanga (2005) attribute the negative attitudes towards the use of African languages as languages of instruction in education, to the fact that the current language policy requires children to learn in the mother tongue only in the lower grades. Children will eventually have to learn in English and will be required to pass English as a subject in order to obtain a full “O” level certificate. According to Chivhanga (2008), the emphasis on passing English at ‘O’ level adversely affects the interest of students in studying ChiShona as a subject. This definitely impacts on their zeal to learn the subject and hence, they fail to perform well in ChiShona ‘O’ level examinations. As a result Shona students view English as a gateway to success and consider ChiShona as a language that is not economically viable. This was demonstrated by one parent in this study who, with reference to the use of ChiShona/IsiNdebele as the language of instruction in education, says, “*Ndinodaro nekuti ndiwo mavambo akashata. Kana vana vazosvika pabvunzo dzavo mufomu 4 zvinozovaremera towana kuti mwana ane mamwe ma‘subject’ asi chirungu asina.*” (I say so because that is a bad beginning. When children get to form four examinations it will be difficult for them, resulting in them passing other subjects but not English language).

There is need for the Government to formulate a clearly defined language policy whereby ChiShona is given equal treatment with English. Currently the Government has its language policy through the provision of the Education Act of 1987 and this is failing to enforce the use of African languages as media of instruction in education

5.4.1 Parents

Responses shown in Table 4.22 show that 80.7% of the respondents conceded that they are happy if all subjects from primary to university level were studied using indigenous African language(s) as a medium of instruction. The parents (80%) in the ‘Yes’ category in Table 4.22 indicated on the questionnaire that they are happy if all subjects from primary to university level were taught using African languages. The parents felt that the use of African languages will make one appear knowledgeable and intelligent. This is a positive attitude towards the use of African languages as languages of instruction in schools. Contrary to the above view, people in post-colonial countries still identify education with former colonial languages as evident in the

new South Africa and Namibia, where Roy-Campbell (1996) and Setati (2005) observed that Africans still resist mother tongue education in favour of English which they view as a language of knowledge. In her research Ndamba (2009) had responses from the parents whose attitude towards the use African languages as media of instruction was negative. One of them responded that “*Kana mwana akapasa Shona haina zvainomubetsera pakuwana basa. Mwana haagoni kuwana College, ndizvo zvinotaura hurumende. Ndingada kuti mwana arohwe achirowerwa kudzidza chirungu.*” (If he/she passes Shona, it will not help him/her get a job. The child cannot get into College, according to the Government. I prefer that my child be beaten in order to learn English). Another respondent put it thus, “*Mwana anozoenda mberi nechikoro asina zvaanoziva. Nokudaro vanenge vauraya upenyu hwemwana zvachose.*” (The child would proceed in education without knowing anything. As a result they would have totally destroyed the future of that child).

In Table 4.23 the parents responded that it would be easy if all subjects were taught in ChiShona as a medium of instruction. The response shows that 68.7% of respondents believe that it will be easy to learn all subjects in ChiShona as a medium of instruction. A significant number of the respondents, 31.3% feared that the use of ChiShona as a language of instruction will have negative societal effects which are likely to degenerate into tribalism because Zimbabwe is a multilingual nation with more than ten African languages.

Responses from interviews showed that parents believed that it is not possible to teach mathematics from primary to university level using an indigenous African language as a medium of instruction. They felt that it is through the use of English as a language of instruction that Mathematics can be taught up to university level. This view is supported in Table 4.20 of this study where the category of the ‘No’ response shows that the parents (78%) believe the mother tongue cannot express and explain educational and scientific concepts. Probably this is because of indoctrination and colonial legacy that indigenous African languages’ vocabulary for science and technology is either limited or nonexistent. This shows that parents have become used to English as a language which provides their children with a more profitable future in the world of employment. English is viewed as performing higher functions than the mother tongue which

does not render a person employable; hence parents tend to negatively evaluate indigenous languages because they do not perform such high functions (Adegbija, 1994; Granville et al, 1998; Ngara, 1977; Robinson, 1996; Otto, 1997; Saville-Troike, 1982).

Parents' perception of the role of the mother tongue in learning clearly indicated that they preferred English to ChiShona as the language of instruction for their children in the primary school. English is positively evaluated possibly due to its functions in the future of children.

5.4.2 Teacher and lecturers

Reinforcement and punishment explain another way by which learning can occur. In this case, a particular behaviour is followed (reinforced) by either pleasurable rewards or by punishment. As an attitude-inducing agent, rewards offered to the Africans who could speak English, since the colonial days, reinforced positive attitudes towards the English language. This further entrenched the use of indigenous African languages. It was common that speaking in local languages at school was a punishable offence. As a result, there has been a long history of negative evaluation (negative attitudes) regarding the use of indigenous African languages in education (Ndamba, 2009). This negative evaluation has been taken into the classrooms where teachers and lecturers have reinforced the negative attitude of using indigenous African languages as media of instruction. An interviewee from Masvingo (interviewee number 3) in this study felt that Globalisation is synonymous with English. English is a universally accepted worldwide as language of communication and it is the language at work places. It is a medium of instruction and research in many disciplines so it's difficult to dislodge it. This negative attitude towards the use of ChiShona is also supported by Jane Ngwenya (a former Zimbabwean Cabinet Minister) being interviewed in Matshazi (2007: 3) who pointed out that "during the colonial days speaking English was one of the many virtues preached on blacks. At that time, at school you could see black students speaking to trees in English in an effort to improve their language and to demonstrate that they were now able to converse in a language of the untouchables."

On the teaching of ChiShona as a subject, Chiwome and Thondhlana (1992) have noted that even in the teaching of ChiShona as a subject, some teachers/lecturers prefer to use English as a medium of instruction. Some students prefer to write their essays on ChiShona grammar in

English when they are given a choice. In Table 4.22 the teachers/lecturers showed a positive attitude towards the use of ChiShona as a language of instruction in education. The teachers/lecturers (75.4%) in the 'Yes' category indicated on the questionnaire that they are happy if all subjects from primary to university level were taught using indigenous African languages. This is a positive attitude towards the use of African languages as languages of instruction in schools. Supporting the positive attitude indicated in Table 4.22, teachers/lecturers (84.6%) in Table 4.23 indicated that it will be easy if all subjects were taught in ChiShona as a medium of instruction. A student teacher from Hillside Teachers college (Interviewee number12) supported the teachers/lecturers' view when she pointed out that through the use of (ChiShona) mother tongue instruction, the children can express themselves; teachers can diagnose what has been learned, what remains to be taught and which learners need further assistance. She added that mother tongue instruction allows children to be themselves and develop their personalities as well as their intellects.

5.4.3 College and university students,

College/University students interviewed in this study had positive attitudes towards the use of ChiShona as a medium of instruction in education. They believe that the use of mother tongue as a medium of instruction ensures that learners are taught in a language spoken by a large number of people, which is useful in local and national life and the language which is familiar to both learners and teachers. Interviewee number 8 pointed out that indigenous African languages could be used as tools of economic empowerment by conveying economic ideas because not all indigenous people are conversant in English. She pointed out that language is used as a vehicle of communication in the official circles to foster people driven linguistic as well as economic development. Positive learner attitudes were noticed in a study cited by Ngara, (1982), where it was found out that children liked to speak in the mother tongue more than in English during lessons. This may be due to the fact that these children, who all indicated that they speak ChiShona/IsiNdebele at home, may find it free and natural to express themselves in their mother tongue during lessons. This attitude is supported by the responses in Table 4.40 where 95 % of the respondents admitted that when they are being taught or examined in English they feel like

expressing themselves in their mother tongue. The mother tongue forms the basis of learning and facilitates understanding and it is undoubtedly the language through which the child is inducted into this world. Responses from the learners in this study shown in Table 4.23 also indicate that 50% of the learners felt that it will be easy if all subjects were taught in ChiShona as a medium of instruction. Probably the respondents were aware that mother tongue instruction can facilitate learning.

In Question 14 students were asked to indicate whether most students encountered problems when studying in English and 78.5% of the respondents indicated from strongly agree to agree that they experience problems studying in English. To them English is not their mother tongue and hence they have difficulties in mastering concepts that are not related to their environment. Probably the respondents believed that they would understand the concepts being learnt better in their mother tongue as English is not always used in their homes.

According to Ngara (1982) Westermann was among the first people to note that there was danger in using a European language as a medium of instruction for African children, who even at primary school level, did not attach any importance to their mother tongue, which they were prepared to get rid of as quickly as possible. In Zimbabwe, research carried out by Moyo (1991) revealed that negative attitudes by parents towards the African languages are passed on to children. Parents of children at Wankie Secondary School regarded IsiNdebele as being of no value to their children's lives since it did not render a person employable. The same sentiments were expressed by children of parents concerned. These parents had no objection to their children learning in English which they felt was more important for the future of their children. This is supported by the responses indicated in chapter four of this study in Table 4.25 where a significant number of the respondents, 48.7% indicated that the use of ChiShona as a medium of instruction will have negative effects, for example Science subjects will be negatively affected since it is difficult to express scientific knowledge using African languages. Even interviewee number 9 felt that the decision to use ChiShona as an official language of instruction in education would create problems for other African languages. What would happen to IsiNdebele and Kalanga with regard to their social status if ChiShona becomes a language of instruction?

The interviewee number 9 went on to argue that ChiShona is a language for one particular group of people in Zimbabwe and making it a language of instruction would increase the chances of tribalism among members of the society. This interviewee overlooks the fact that there has to be policy to guide smooth operations. Languages have to be planned for economic utilisation. South African learners who were interviewed by Setati (2005); Langa and Setati (2006) preferred the use of English in the learning of Mathematics in the secondary school. These researchers attributed learner choice of the language of instruction to the socio political situation. These learners did not see value in their indigenous African languages as they do not have any social and economic benefits.

5.5 BENEFITS OF USING CHISHONA AS A MEDIUM OF INSTRUCTION

Advocates for the use of mother-tongue education view the continued use of the former colonisers' language as an attempt to "remain fixed on the false premise that their indigenous African languages are useless as vehicles of instruction in science and technology" (Rwambiwa, 1996: 1). The statistics from the Table 4.26 showed that 75.8% of the respondents indicated that the use of ChiShona as a language of instruction, that is, mother tongue instruction, in education has societal benefits in Zimbabwe. The mother tongue forms the basis of learning because mother tongue instruction facilitates understanding. 80% of the respondents agreed that the use of ChiShona as a language of instruction in education will benefit the society. Language is a communication tool without which there is no development. It is a vehicle of projecting one's norms, values, beliefs, thought processes and these need to be communicated.

Interviewee number 12 pointed out that language is a vehicle of communication that enhances development within the society. Economic growth can be achieved through communication and interaction of different socio-economic factors. Using ChiShona as a language of instruction in education will benefit the majority of the population as it is spoken by more than 80% of Zimbabwe's population. Education would become accessible to many. English medium restricts learners' performance. Learning becomes easier if concepts are taught in one's own language.

Employment of ChiShona in education ensures rejuvenation and revitalisation of African Languages and enhances their image when people realise that concepts and subjects formally

reserved for English can be taught in ChiShona too. This also enables environmental adaptation by sharing ideas to manage or conquer the environment. ChiShona, as a mother tongue, is undoubtedly the language through which the child will understand his/her environment and concepts far better (Mutasa, 2004). Use of ChiShona will provide access to almost all sources of knowledge including school textbooks. This may lead to the promotion or better status for indigenous languages.

From the study there were respondents (see Table 4.22) who felt that no much benefit would be experienced if ChiShona is used as a language of instruction in education. Some felt that the use of ChiShona would create learning problems as it has limited terminology and vocabulary to scientific and educational concepts. They argue that instruction in ChiShona will only benefit speakers of that language variety at the expense of the wider African community. African communities will be isolated and excluded from the global village, which communicates mainly in internationally recognized languages such as English. It would create communication problems between Zimbabwe and other nations on the African continent and beyond. One has to note that even where the language innovation is likely to benefit users if people do not view it as such they are unlikely to support the language change because it would suffer from tissue rejection (Obanya, 1987). In cases where the language attitudes are negative, measures ought to be taken to encourage users to develop positive attitudes towards the proposed language change.

5.6 DEVELOPING CHISHONA FOR USE IN EDUCATION

In spite of the negative attitudes displayed by speakers of African languages in this study this section of the study will discuss the views of the respondents with regard to the promotion of ChiShona as a language of instruction in education.

Question 24 of this study was: *Do you think teachers in Zimbabwe are fully equipped to teach using an African language as a medium of instruction?*

Responses shown in Table 4.37 indicated that parents (60%), teachers/lecturers (92.3%) and learners (79.6%), admitted that educators are not adequately trained and are ill equipped to teach using ChiShona as a medium of instruction. Admission by the teachers/lecturers (92.3%) is an indication that if ChiShona is to be used as a language of instruction in schools a lot need to be

done to improve the situation. The training of teachers to use ChiShona as a language of instruction is long overdue and it's a milestone in the development of African languages. The informants from the interviews confirmed that the teachers are not fully equipped to teach using an African language as a medium of instruction in education even if most of them regularly use the vernacular language when teaching. There is need to develop the indigenous African languages to the extent that terminology is adequate for use in education.

Currently the Ministry of Education and Culture in Zimbabwe is implementing an educational policy that ChiShona grammar should be taught or learnt in ChiShona at all levels of education, hence teachers are being compelled to use ChiShona when teaching ChiShona in schools. This is a positive step in the development of ChiShona. ZIMSEC has even moved a step further by making it compulsory that 'O' and 'A' level ChiShona examinations should strictly be answered in ChiShona. However greater steps need to be made in the provision of ChiShona resource materials to ChiShona learners up to university level. Most of the resource materials in secondary and tertiary levels are written in English and this has provided problems of translation from English to ChiShona. On the other hand, the teachers still have the tendency of teaching certain components of Shona in English (Gudhlanga, 2005).

The interview respondents applauded the launching of the ALLEX (African Languages and Literature Lexicography) project at the University of Zimbabwe, which, among other activities, is involved in the development of dictionaries and the creation of literary and technical terminology in indigenous languages. So far, the project has seen the publishing of the first monolingual dictionary in ChiShona, and another one is expected soon in the IsiNdebele language. The institutionalization of the ALLEX project as the ALRI (African Languages Research Institute) at the University of Zimbabwe is, in general, responsible for the systematic studying, documenting, and developing of the languages of Zimbabwe.

Some interviewees pointed out that there are moves to make ChiShona and IsiNdebele official languages along with English as well as to officially recognize all minority indigenous languages of Zimbabwe. This is yet to be gazetted and implemented. There is the development of fictional

literature and language books in indigenous languages, particularly in the case of ChiShona and IsiNdebele being done by The Shona Language and Culture Association (SLCA). According to Magwa (2008) SLCA is a professional organization composed of dedicated Shona language and culture practitioners working in universities, research institutes, teachers colleges, schools, publishing houses and other organizations that deal with Shona as a language and as a subject. It brings together people who are committed to seeing the Shona language being used in all walks of life for the betterment of its speakers. The organisation will provide the Government with written advice on matters aimed at empowering and promoting African Languages in general and in particular ChiShona language. It will see all matters relating to professional standards in the teaching of the Shona language and culture including subject content, books and materials that are used.

In their research Gunhlanga and Makaudze (2005: 1) and Magwa (2008:160) pointed out the contributions being made by the Great Zimbabwe State University where the Department of African Languages and Literature has made a bold statement to the effect that all courses and the writing of assignments offered by the Department, such as Phonology, Phonetics, Morphology, Literature and Syntax are being done in ChiShona and IsiNdebele. Despite the scarcity in resources of instruction in the mother tongue it seems to be benefiting the nation. This is a good step in the right direction in promoting the use of indigenous African languages as media of instruction in education.

Some respondents have also mentioned the introduction of ChiShona-IsiNdebele newspapers (though more should be introduced) which are being read in schools and in libraries. Although these are steps in the right direction, it seems obvious that Zimbabwe needs to give the question of the status and usage of indigenous African languages some very serious thought.

5.7 CONCLUSION

In this chapter, the discussion was guided by research findings and it also considered the feasibility of using ChiShona as a medium of instruction in the teaching of Mathematics in

primary schools. The medium of instruction is viewed to have a strong bearing on how the learner will adjust to primary school life as it either provides a smooth hand over-takeover from the home to the school system or a rough grab that might result in frustrating the learner. Findings of the teaching experiment showed that the use of ChiShona as a medium of instruction in teaching Mathematics is feasible and the Grade 4 learners could understand the mathematical concept of addition and subtraction in ChiShona without problems.

The use of ChiShona gives the nation identity in the world. It has been established without doubt that African languages can be factors for development and tools of economic empowerment. It has also been argued that African languages if used as media of educational instruction could facilitate easy concept development and comprehension of ideas in learning Mathematics; however the education system is still bedevilled with effects of colonialism.

From the questionnaires and interviews Zimbabweans still hold the view that education comes through the medium of English. They see English as an official language which has been associated with success, power, prestige, progress and achievement, and such associations have generally resulted in English getting a high positive evaluation. In view of the findings discussed in this chapter, it is suggested that implementation of language innovation should be preceded by a clear understanding of the language attitudes of the intended users. The findings show that there was no consistency between the language policy and parents' perception of the role of ChiShona as a medium of instruction in learning since parents clearly indicated that they preferred English to ChiShona as the language of instruction for their children in schools.

The responses towards the usage of English language express the dominance of the language and the high variety it enjoys over ChiShona. Emerging from the responses is the mood expressed by the respondents and their eagerness to engage in language policy planning issues related to the use of ChiShona as a language of instruction in education.

The next chapter will make conclusions from the research findings. It presents a summary of research findings, conclusions and recommendations for future research.

CHAPTER 6

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

This study examined the feasibility and possibility of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools of Zimbabwe and compares its effectiveness with that of English as a medium of instruction in teaching Mathematics. ChiShona is the mother tongue for most of the learners in primary schools. The purpose of this research was to establish the attitudes of people towards the use of indigenous languages in major domains such as education, medicine, law, industry and commerce. This chapter therefore collates the findings from the practical teaching experiment, interviews and questionnaires with respect to each research question. From these findings, recommendations to improve the status and use of ChiShona in Zimbabwe are made and these should be seen as suggestions that would improve the general status and policy framework of all indigenous languages spoken in the country and, the teaching of all subjects through the mother tongue.

In this is the final chapter, the researcher summarises research findings and presents conclusions and recommendations based on research findings, analysis and discussion outlined in Chapter 5

6.2 RESEARCH SUMMARY

The study set out to explore the feasibility of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools of Zimbabwe and to compare its effectiveness with that of English as a medium of instruction in teaching Mathematics. Chapter one introduced the problem of the study by giving a background to the study. The problem highlighted was that Zimbabwe inherited from its colonial past a language policy that marginalises the use of indigenous African languages in the education system. English continues to be the prestige-laden language enjoying high status while indigenous languages enjoy relatively low status. English is the medium of instruction in primary, secondary and tertiary education. African languages such as ChiShona, have received very little attention in terms of being used as media of instruction.

Decades after attaining independence, African countries remain prisoners of the past with constraint reinforced by the argument that English is going to be needed for higher education, technology, science and industry (Bamgbose, 1991:72). ChiShona is spoken by 80% of the Zimbabwean population (Hachipola 1998, Batibo, 2005:84). It is the mother tongue for most of the learners in primary schools. In class English is their language of instruction in the teaching of subjects such as Mathematics and their mother tongue is marginalised. Although ChiShona is spoken by the majority of the children in primary schools, it has not assumed any significant role as a national indigenous language. The mother tongue is a production tool that facilitates thinking and sharing of ideas in a teaching and learning situation.

The research aimed at establishing the degree to which ChiShona can be introduced in the educational domain as a language of teaching and learning in primary schools. The chapter proceeded to state objectives of the study which include to investigate the feasibility of using ChiShona as a medium of instruction in the teaching and learning of Mathematics to a Grade 4 class and to compare the use of English as a medium of instruction with ChiShona as medium of instruction in the teaching and learning of Mathematics in Zimbabwean primary schools.

The study involved wide research on the topic and a firm grounding on the theoretical framework on which the research was based, that is, language planning. Varied methodologies were adopted to gather data. To begin with the research was guided by a practical teaching experiment which employed the use of ChiShona in teaching Mathematics to a Grade 4 class. Interviews were conducted and responses recorded. Over and above the experiment and interviews, a questionnaire was administered to capture people's attitudes and views about the language situation in Zimbabwe. Data triangulation was done by getting information from different sources. The chapter gave an outline of the scope, highlighted limitations and finally defined key terms to the study.

In Chapter 2 of the study, the researcher focused on the literature review with regard to the teaching of Mathematics using ChiShona as a medium of instruction. It looked at the role of mother tongue instruction in teaching of subjects in primary schools with special reference to the teaching of Mathematics in order to provide a firm foundation into the discussion of how

ChiShona can be used in the teaching of Mathematics in primary schools. This chapter discussed theories of language planning and language policy which include: corpus planning, status planning and language acquisition. In the language planning stage, the language problem has to be identified especially in the area of education. In the corpus planning stage, the coining of new terms, reforming of spellings and adoption retention of scripts becomes the focus. In multilingual society the status of a language plays a pivotal role in its use and function and this may be the stage that was discussed under the language planning stage. The language acquisition stage deals with the numbers of users as speakers, writers, listeners or readers. The language policy formulation stage cannot be done haphazardly as there is a need for theories and models to guide the planners, to set the path to achieve the objectives.

The chapter also discussed the global perspectives of language policy, colonial language policies in Zimbabwe and the post- colonial language policies in Zimbabwe. These policies were analysed in order to provide a theoretical framework for the use of ChiShona as a medium of instruction in Education. The success of a mother tongue instruction policy depends on people's attitudes towards the first language (ChiShona) and the second language (English). The colonial and the post colonial language and educational policies obviously provide a solid basis of the explanation of attitudes towards indigenous languages.

Chapter 3 focused on the theoretical framework which gave the foundation to the methodology of this study. This theoretical framework provided the basis on which this study is grounded and guided analysis and interpretation of the findings of this research. The discussion in this chapter provided the research design, population sample, research instruments and data collection procedures for the study. In this chapter the advantages and disadvantages of different research methods are discussed in detail as opposed to the preliminary outline that was provided in Chapter one. The research data was collected through practical teaching experiment of a Grade 4 class by the researcher as well as by interviewing various people which included teachers, lecturers, students and parents. Questionnaires were also used to collect data from various respondents. The use of triangulation enabled the researcher to approach the research problem from different angles and it allowed the involvement of the subjects rather than relegating them to scientific objects whose reaction could be predetermined and therefore uniform.

Chapter four presented and analysed data from research findings. Quantitative data was presented in tabular and diagrammatic form. Responses from interviewees were tabulated to back up the research's broad views. Data were collected and analysed from the practical teaching experiment with a Grade 4 class. The Grade 4 class was divided into two groups of 20 learners each, Group A and Group B. Group A learnt Mathematics using ChiShona as the medium of instruction and Group B was taught the same topics and concepts in English. Findings from the post-test of the experiment showed that Group A (67.9%) learners performed better than Group B (66.7%). The experiment concluded that the use of ChiShona as a medium of instruction in teaching mathematics is feasible and the learners could understand the mathematical concept of addition and subtraction in ChiShona without problems.

Findings from all the three questionnaires showed that the majority of the participants (77.2%) prefer English to be the medium of instruction in Zimbabwe. When asked to justify, they argued that English is an internationally recognized language hence it is the gateway to success. Others said since Zimbabwe is a mixed society with so many languages spoken, it is only English which can be neutral when it comes to selection. However parents, teachers/lecturers and college/university students (86%) felt that it was possible to use ChiShona as a medium of instruction in teaching mathematics in primary schools. It was interesting to note that 55.6% of the participants did not agree that their mother tongue could express educational and scientific concepts. The main reason put forward by the respondents was that ChiShona is underdeveloped and does not have enough vocabulary to express modern scientific concepts. It was established by the interviewees that ChiShona could be developed and improve on its usage as a language of instruction in education.

The findings from the interview have also shown that English is the language that gives power and prestige in Zimbabwe. Findings also reveal that indigenous African languages are the key facilitators of development. Results from both the questionnaires and the interview affirmed the generally held view that development cannot take place where linguistic barriers exist. The English language has been viewed as the official language by most respondents. There is

therefore need for media campaigns in order to conscientise the general populace about the diversity of our languages and the benefits that derive from such a situation.

Findings from the study show that 81% of the respondents envisage that indigenous languages should be introduced at primary level. The indigenous African languages will form a solid foundation for their use in education or even in science subjects as languages of instruction. The teachers/lecturers (88.5%) and learners (92%) confirmed that indigenous African languages should be used as languages of instruction only at the primary school level of education (see Table4.36).

Chapter 5 discussed the findings from the practical teaching experiment and responses to the questionnaire and interviews as well as relate the data to other scholarly works that have been consulted. The inclination towards English language expresses the dominance of the language and the high status it enjoys over indigenous African languages such as ChiShona. Very strong arguments emerged from the practical teaching experiment and the responses given by respondents in their comparison of the languages and usage discussed the strategies that can be adopted in order to implement the language planning policies explored in this study.

The discussion was guided by research findings and it also considered the feasibility of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools. The medium of instruction is viewed to have a strong bearing on how the learner will adjust to primary school life as it either provides a smooth hand over-takeover from the home to the school system or a rough grab that might result in frustrating the learner.

From the questionnaires and interviews Zimbabweans still hold the view that education comes through the medium of English and see it as an official language which has been associated with success, power, prestige, progress and achievement. In view of the findings discussed in chapter four, it was suggested that implementation of language innovation should be preceded by a clear understanding of the language attitudes of the intended users.

6.3 CONCLUSIONS

This study explored the feasibility and probability of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools of Zimbabwe and compared its effectiveness with that of English as a medium of instruction in teaching Mathematics. ChiShona is the mother tongue for most of the learners in primary schools in Zimbabwe. Findings from Chapter 4 provided answers to the study research questions and the following conclusions are adopted:

6.3.1 The feasibility of using ChiShona as a medium of instruction in the teaching of Mathematics in primary schools.

The practical teaching experiment intended to have firsthand experience of introducing the teaching of mathematics using ChiShona, an indigenous language, as a medium of instruction to primary schools of Zimbabwe. From the experiment, it is evident that the use of ChiShona as a medium of instruction in the teaching of Mathematics to primary school children is possible. In the experiment, the Grade 4 learners managed to do written exercises, including the Pre test and Post test in ChiShona and did very well (see Tables 4.4; 4.5; 4.6; 4.7 and 4.1). The learners could easily interact and develop the concepts of Mathematics in ChiShona without any problems.

6.3.2 Effectiveness of using ChiShona as a medium of instruction in the teaching and learning of Mathematics as compared to the use of English as a medium of instruction in the teaching and learning of Mathematics primary schools.

The research findings from the practical teaching experiment in Chapter 4 show strong evidence that after the practical teaching for both groups in which Group A used ChiShona as a medium of instruction in the teaching and learning of Mathematics to a Grade 4 class and Group B used English as a medium of instruction in learning Mathematics, both groups were given a Post test and statistics in Table 4.8 indicated that the average mark for Group A pre-test was 55.9% and for Group B was 53%. The group averages for the post-tests were 67.9% and 66.7% for Group A and Group B respectively. In comparing the group averages for the pre-tests and post-tests(see Table 4.8), it is clear that both groups performed well and showed an improvement from their

Pre-tests group averages to the Post-test group average. Group A performed better than Group B in both the given tests. The use of the mother tongue instruction (ChiShona) impacted positively in the teaching of Mathematics to Grade 4 learners. It is evident that the use of ChiShona as a medium of instruction in teaching Mathematics is effective and the learners could understand the mathematical concept of addition and subtraction in ChiShona without problems.

6.3.3 The socio-economic advantages of using ChiShona language as an official medium of instruction in education

Findings from the interviews and questionnaires show that employment of ChiShona in education ensures rejuvenation and revitalisation of indigenous African Languages and enhances their image when people realise that concepts and subjects formally reserved for English can also be taught in ChiShona. This also enables easy environmental adaptation by people through sharing ideas of managing. ChiShona, as a mother tongue, is undoubtedly the language through which the child will understand his/her environment and concepts far better (Mutasa, 2004). Use of ChiShona will provide access to almost all sources of knowledge including school textbooks. From the interview participants it is evident that language is a vehicle of communication that enhances development within the society. Economic growth can be achieved through communication and interaction of different socio-economic factors. It is in these indigenous African languages that knowledge for the improvement of the masses of the Zimbabwean society can be transmitted. A language of instruction, such as ChiShona, which is the home language or mother tongue, is an instrument for the cultural and scientific empowerment of people. Cultural freedom and African emancipation therefore cannot be cultivated expanded or developed where the language of instruction is different from the home language or the language people normally speak in their everyday lives (Mavesera, 2009).

Using ChiShona as a language of instruction in education will benefit the majority of the population as it is spoken by more than 75% of Zimbabwe's population. Education would become accessible to many. English as a medium of instruction restricts the learners' performance. Learning becomes easier if concepts are taught in one's mother tongue. Evidence from the Table 4.26 show that 75.8% of the respondents indicated that the use of ChiShona as a

language of instruction, that is, mother tongue instruction, in education has societal benefits in Zimbabwe. The mother tongue forms the basis of learning because mother tongue instruction facilitates understanding. Mother tongue accelerates learning and injects pride and independence. The use of ChiShona, the mother tongue, respondents from both the questionnaire and the interview strongly agreed that it will further promote better understanding between the home and the school. This conclusion is supported by Mavesera (2009) who also concluded that participants in her study also stressed emphatically that learning in general occurs more effectively if the required cognitive development is taking place through the use of a first language as a language of learning. If Zimbabweans would want to make strides in both educational and economic development, children should actively participate using indigenous languages in the development of science and technology.

6.3.4 The people's attitudes towards the use of ChiShona as a language of instruction in the teaching and learning of Mathematics in primary schools

This research indicates strong evidence that parents, teachers/lecturers and college/university learners have a negative attitude towards the use of ChiShona as a medium of instruction in the teaching of Mathematics. The responses from Questions 7,8, 9, 10, 13, 18, and 19 of the questionnaire for college /university learners and Teachers/lecturers and Questions 6, 7 ,9, and 10 of the questionnaire for parents which aimed at getting information of the teachers/lecturers' and college/university learners' attitudes towards the use of their mother tongue as a language of instruction showed that both teachers/lecturers and college/university learners have negative attitudes towards ChiShona as a language of instruction in education. Results consistently show that the majority of respondents did not prefer the use of ChiShona as medium of instruction at primary school level. Most of the respondents preferred that English remain the only medium of instruction from primary up to university level and they felt that English offers them better opportunities for employment compared to ChiShona. English was seen as empowering them to compete well in the global village. English seems to guarantee them "access to the system and equal opportunity to participate in it" (Adegbija, 1994: 3). As can be observed in Table 4.27, the majority of the respondents with a cumulative total of 71.1% from the categories of strongly agree to agree believed that English should continue to be used as the official medium of

instruction in Zimbabwe's education system. Attitudes to indigenous African languages as subjects on the curriculum are still negative in some educational institutions. The languages are seen as soft options or where their teaching is made compulsory, an unavoidable drudgery. Even where an indigenous African language is a compulsory subject, it is rarely made compulsory for purposes of certification or admission to the next level of education (Mavesera, 2009). Research has also shown that people think that English is more important than ChiShona/ IsiNdebele and this has been passed on to children by parents who tell children that English is prestigious and provides educational and employment opportunities in the future, (Nondo 1996). The children begin to develop negative attitudes towards the indigenous African languages which they might then regard as less important (Bangbose, 1991; Robinson, 1996; Adegbija, 1994).

Contrary to the above negative view the College/University students interviewed in this study had positive attitudes towards the use of ChiShona as a medium of instruction in education. They believed that the use of mother tongue as a medium of instruction ensures that learners are taught in a language spoken by a large number of people, which is useful in local and national life and the language which is familiar to both learners and teachers. Some participants pointed out that indigenous African languages could be used as tools of economic empowerment by conveying economic ideas because not all indigenous people are conversant in English. The parents (80%) in the 'Yes' category in Table 4.22 also indicated on their questionnaire that they are happy if all subjects from primary to university level were taught using indigenous African languages. The parents believed that the use of indigenous African languages will make one appear knowledgeable and intelligent. This is a positive attitude towards the use of indigenous African languages as languages of instruction in schools.

6.3.5. Developing of ChiShona

Responses from the questionnaires and interviews concluded that ChiShona is being promoted in the education of Zimbabwe. Contributions being made by the Great Zimbabwe State University in the Department of African Languages and Literature are bold. They have effected that all courses and the writing of assignments offered by the Department, such as Phonology, Phonetics, Morphology, Literature and Syntax be done in ChiShona. ZIMSEC has even moved a step

further by making it compulsory that ‘O’ and ‘A’ level ChiShona examinations should strictly be answered in ChiShona.

The respondents also noted that the launching of the ALLEX (African Languages and Literature Lexicography) project at the University of Zimbabwe, which, among other activities, is involved in the development of dictionaries and the creation of literary and technical terminology in indigenous African languages is a step in the right direction. So far, the project has seen the publishing of the first monolingual dictionary in ChiShona, and IsiNdebele language.

6.4 RECOMMENDATIONS

The research made the following recommendations in order to find ways in which ChiShona as a medium of instruction can be used in teaching Mathematics in primary schools and also be developed in order to become a high variety that could be used as an official language or a medium of instruction in education.

- There is need for the Government to formulate a clearly defined language policy whereby ChiShona is given equal treatment with English. Currently the Government has its language policy through the provision of the Education Act of 1987 and this is failing to enforce the use of African languages as media of instruction in education. The Government should consider ChiShona as a compulsory subject for further education and employment. African languages such as ChiShona should be a requirement for entry into universities and other tertiary institutions in the same way English is today. Instituting English and not other languages as the only requirement undermines the development of indigenous African languages
- A language awareness campaign is necessary in order to redress negative attitudes and restore the dignity of ChiShona as an indigenous African language as discussed in Chapter 5. Workshops to redress such situations are necessary in order to make people aware of the importance of indigenous languages such as ChiShona and IsiNdebele. Pamphlets with information on the importance of using mother tongue instruction and the significance of bilingual education should be used in language awareness campaigns. The

government and other stakeholders should give information to the population on the facts that unity and progress cannot be achieved through the use of one language and that people can be empowered through the use of their own languages such as ChiShona. The Government and other stakeholders', for example, Universities, should develop language resource centres that may develop the use and status of indigenous African languages such as ChiShona.

- There is need to develop resource material that could be used for the teaching of indigenous African languages. The existing textbooks can be translated from English to the indigenous African language so that they could be used in the teaching of science subjects. The use of ChiShona in education and industry needs to be supported by research in the development of terminology and standardization. There is need for research on the use of ChiShona for operational efficiency in industry, media, commerce, essential services and community work.
- There is a need for further research on how to solve the current problem on implementing a mother tongue policy in the primary school level in Zimbabwe. And it seems there is no imminent solution in sight, because thirty two years after independence, parents, teachers and pupils still have negative attitudes towards learning in the mother tongue, despite benefits offered by mother tongue instruction.
- Government would need to support individuals and institutions that work towards promotion of indigenous African languages. Clear operation strategies and channels that are not bedevilled by the red tape syndrome should be put in place to facilitate development of indigenous African languages. Roles and terms of reference should be streamlined so that one ministry can address language and cultural issues.(Mavesera, 2009)
- ChiShona in schools should be taught in ChiShona. There is need for Human resources development to handle the use of ChiShona at all levels of education and to handle

multilingualism in the teaching and learning situations in schools. Programmes to train teachers to teach science subjects in ChiShona should be designed. Universities should teach African languages using African languages as the media of instruction. Universities teaching African languages in English are impeding and retarding the development of African languages. What transpires at the Universities is likely to have an impact on what goes on in schools and the community (Mutasa, 2003).

- Mass media (both print and electronic) need to play an influential role in shaping people's attitudes towards the use of mother tongue as medium of instruction in education. The media can shape language attitudes through its socialization function. Mass media portray the values of society, and by watching, listening and reading, we learn how people are supposed to act and what values are important (Dominick, 2005). The values communicated through the media may also encourage the status quo by enforcing social norms that promote the use of indigenous African languages in education. Mass media could also play an important role by providing a rich environment for the use and interaction with the proposed language. This is possible if the media communicates important matters through the proposed language. The current situation in Zimbabwe does not promote the use of any indigenous African language because out of about ten (10) national newspapers only one (1) publishes in ChiShona. The rest use English exclusively.
- The findings suggest that parents and children had a more positive attitude towards English than the mother tongue as the language of instruction. This shows that people have been so linguistically colonized that they have more faith in the English than they do in the mother tongue process of children's learning. Parents and teachers need to be exposed to information concerning the value of using the mother tongue as the medium of instruction as these participants were not aware of the educational benefits of using the ChiShona even during the initial years of a child's schooling. Attitudes need to be changed by parents and pupils who seem to favour English more than the ChiShona. This should be done through campaigns to educate people on the rationale use for using the

mother tongue in learning at the primary level. This would help to create “a new generation of Zimbabweans who are proud of their languages and their values, their cultures and their heritage” (Zimbabwe Languages Association {ZLA}, 1997). Rwambiwa (1996) advocates for a commission of committed intellectuals of various disciplines who can design and produce a de-colonizing media, so people can start to love and respect ChiShona and IsiNdebele.

- Education for All goals and localization of examinations should be complemented with provision of an enabling media of instruction. Indigenous African languages should be used to enhance concept formation, retention of information and promotion of the application of the acquired skills and knowledge into the learner’s immediate environment. In Zimbabwe, this would complement the localization of examinations.
- The use of African languages should open gates for active participation by local communities in community and national development projects. There should be room for indigenous people to adjust, appreciate and assimilate development within their cultural and environmental settings. Such development would be all-inclusive, rewarding and owned by all.

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APPENDICES

APPENDIX A: QUESTIONNAIRE FOR UNIVERSITY / COLLEGE LEARNERS

This questionnaire is designed to collect information on the attitudes of Zimbabwean university and College learners towards the use of ChiShona as a language of instruction in education. Kindly complete the questionnaire by inserting your answers in the boxes and spaces provided. In order to maintain anonymity and confidentiality, please do not write your name. The information you provide will be used for academic purposes only.

Please indicate the appropriate answer by placing an ☐ in appropriate box.

1. Sex

Male

Female

2. Age

10 – 14

15 – 19

20 – 24

25 – 29

30 – 34

Above 35

3. Level of education

Primary

Secondary

Tertiary

4. Name the language(s) that you speak at home.

.....

.....

5. What is the name of your mother tongue?

.....

6. List languages that are spoken in Zimbabwe.

- | | |
|-------|------|
| (i) | (ix) |
| (ii) | (x) |
| (iii) | (xi) |

(iv)

(xii)

(v)

(xiii)

(vi)

(xiv)

(vii)

(xv)

(viii)

(xvi)

7. What language(s) do teachers use to teach you Mathematics as a subject?

English

African language(s)

Other (specify)

8. What language(s) do you think should be used as language(s) of instruction in the teaching and learning of Mathematics in primary schools

English

African language(s)

Other (specify)

Why?

.....

9(a) Which language(s) is mostly likely to give you power and prestige in Zimbabwe if you speak it?

English

African languages

Other (specify).....

9(b) Do you think languages have a relationship with the social, economic and scientific development of a nation?

Yes

No

Reason(s)

.....

.....

10. Do you think your mother tongue is able to express and explain educational and scientific concepts in the teaching of Mathematics in primary schools?

Yes

No

11. If your answer to the above question is “**No**”, do you think it is possible for your mother tongue to be developed to express educational and scientific ideas?

Yes

--

No

--

12. Would you be happy if all subjects from primary to university level were studied using indigenous African language(s) as a medium of instruction?

Yes

--

No

--

Reason(s)

.....

.....

13. Do you think learning would be easier if all the subjects were taught in ChiShona as a medium of instruction?

Yes

--

No

--

Reason(s)

.....

.....

14. Most learners encounter problems when studying in English

Strongly agree

Slightly agree

Agree

Disagree

Slightly disagree

Strongly disagree

15. The use of ChiShona as languages of instruction in education is a key national issue that requires urgent attention.

Strongly agree

Slightly agree

Agree

Disagree

Slightly disagree

Strongly disagree

16. Are there any wider societal benefits you can foresee if education in Zimbabwe is to be carried out using ChiShona as a language of instruction?

Yes

No

--

Specify

.....

.....

17. What negative societal effects would the use of African languages as languages of instruction have?

.....

.....

18. When you are being taught or examined in English, do you sometimes feel like expressing yourself in your mother tongue?

Yes

No

Why?

.....

19. When you are brainstorming ideas preparing for an answer during a lesson/examination, which language do you use?

English

Mother Tongue

Other (specify).....

20. Do you like being taught in a language that is not your mother tongue?

Yes

No

Reason(s)

.....

.....

21. English should continue to be used as the official medium of instruction in Zimbabwe's education system.

Strongly agree

Slightly agree

Agree

Disagree

Slightly disagree

Strongly disagree

--

22. Are there any efforts being made to promote the use of ChiShona in Zimbabwe?

Yes

--

No

--

Explain

.....

.....

23. At what level of education should indigenous languages be introduced as media of instruction?

Primary

--

Secondary

--

Tertiary

--

24. Do you think teachers in Zimbabwe are fully equipped to teach using an African language as a medium of instruction?

Yes

--

No

--

Reason(s)

.....

.....

25. Is their willingness on the part of the government to use indigenous languages as media of instruction in education?

Yes

--

No

--

Why?

.....

26. Is there adequate teaching material to conduct learning of Mathematics in ChiShona?

Yes

--

No

--

What do you think should be done?

.....

.....

Thank you.

APPENDIX B: QUESTIONNAIRE FOR TEACHERS/LECTURERS

This questionnaire is designed to collect information on the attitudes of Zimbabwean teachers, towards the use of ChiShona as a language of instruction in education. Kindly complete the questionnaire by inserting your answers in the boxes and spaces provided. In order to maintain anonymity and confidentiality, please do not write your name. The information you provide will be used for academic purposes only.

Please indicate the appropriate answer by placing an

X

 in the appropriate box.

SECTION A

1. Sex

Male

Female

2. Age

20 - 24

25 - 29

30 - 34

35 - 39

40 - 44

45 – 49

Above 50

3. Level of education

O – Level

--

A – Level

--

Diploma / Certificate

--

Bachelors degree

--

Masters degree

--

Doctoral degree

--

4. Name the language(s) that you speak at home.

.....

.....

.....

5. What is the name of your mother tongue?

.....

.....

.....

6. What language do you use to teach learners at your institution?

English

African language(s)

Other (specify).....

What subject(s) do you teach?

.....

.....

.....

7. What language(s) do you think should be used as medium of instruction to teach maths?

English

African language(s)

Agree

Other (specify).....

Reason(s)

.....

.....

- 8(a) Which language(s) is mostly likely to give you power and prestige in Zimbabwe if you use it?

English

--

African language(s)

--

Why?

.....

- (9) Do you think languages have a relationship with social, economic and scientific development?

Yes

--

No

--

Why?

.....

10. Can ChiShona as an African language express educational and scientific concepts in Maths?

Yes

--

No

--

11. If your answer to the above question is **NO**, do you think it is possible for ChiShona to be developed to express educational and scientific ideas?

Yes

--

No

--

12. Would you be happy if everything from primary to university level was studied in African languages?

Yes

--

No

--

Reason(s)

.....

.....

13. Do you think learners would find it easier if all subjects were taught using ChiShona as a medium of instruction?

Yes

--

No

--

Reason(s)

.....

.....

14. Most learners encounter problems when studying in English

Strongly agree

--

Slightly agree

--

Agree

--

Disagree

--

Slightly disagree

--

Strongly disagree

--

15. The use of ChiShona as languages of instruction in education is a key national issue that requires urgent attention.

Strongly agree

--

Slightly agree

--

Agree

--

Disagree

--

Slightly disagree

--

Strongly disagree

--

17. What negative societal effects would the use of ChiShona as a language of instruction have?

.....

.....

18. When you are teaching or examining in English, do you sometimes feel like expressing yourself in the mother tongue?

Yes

--

No

--

Why?

.....

19. When you are brainstorming ideas preparing for a lesson, which language do you use?

English

--

Mother tongue

--

Other (specify).....

20. English should continue to be used as the official medium of instruction in Zimbabwe's education system

Strongly agree

Slightly agree

Agree

Disagree

Slightly disagree

Strongly disagree

21. Are there any efforts being made to promote the use of ChiShona in Zimbabwe?

Yes

No

Explain

.....

.....

22. At what level of education should indigenous languages be introduced as medium of instruction?

Primary

--

Secondary

Tertiary

23. Do you think teachers in Zimbabwe are fully equipped to teach using indigenous languages as medium of instruction?

Yes

No

Reason(s)

.....

.....

24. Is there adequate teaching material to conduct learning in ChiShona?

Yes

No

25. Language associations, institutes and organizations contribute positively towards the development and use of indigenous African languages as media of instruction in Zimbabwe.

Strongly agree

--

Slightly agree

--

Agree

--

Disagree

--

Slightly disagree

--

Strongly disagree

--

Give examples

.....
.....
.....

Thank you

APPENDIX C: QUESTIONNAIRE FOR PARENTS

This questionnaire is designed to collect information on the attitudes of Zimbabwean parents towards the use of ChiShona as a language of instruction in education. Kindly complete the questionnaire by inserting your answers in the boxes and spaces provided. In order to maintain anonymity and confidentiality, please do not write your name. The information you provide will be used for academic purposes only.

Please indicate the appropriate answer by placing an

X

 in appropriate box.

SECTION A

1. Sex

Male

Female

2. Age

20 - 24

25 - 29

30 - 34

35 - 39

40 - 44

45 – 49

Above 50

--

3. Level of education

O – Level

--

A – Level

--

Diploma / Certificate

--

Bachelors degree

--

Masters degree

--

Doctoral degree

--

4. Name the language(s) that you speak at home.

.....

.....

.....

5. What is the name of your mother tongue?

.....

.....

.....

6. What language(s) do you think should be used as medium of instruction to teach your children at school?

English

African language(s)

Agree

Other (specify).....

Reason(s)

.....

.....

- 7 Which language(s) is mostly likely to give you power and prestige in Zimbabwe if you use it?

English

African language(s)

Why?

.....

- 8 Do you think languages have a relationship with social, economic and scientific development?

Yes

No

Why?
.....

9. Would you be happy if everything from primary to university level was studied in African languages?

Yes

No

Reason(s)
.....
.....

10. Do you think your children would find it easier if all subjects were taught using ChiShona as a medium of instruction?

Yes

No

Reason(s)
.....
.....

11. The use of ChiShona as languages of instruction in education is a key national issue that requires urgent attention.

Strongly agree

Slightly agree

Agree

Disagree

Slightly disagree

Strongly disagree

12. What negative societal effects would the use of ChiShona as a language of instruction have?

.....

.....

13. English should continue to be used as the official medium of instruction in Zimbabwe's education system

Strongly agree

Slightly agree

Agree

Disagree

Slightly disagree

Strongly disagree

--

14. Are there any efforts being made to promote the use of ChiShona in your community?

Yes

--

No

--

Explain

.....

.....

15. Language associations, institutes and organizations contribute positively towards the development and use of indigenous African languages as media of instruction in Zimbabwe.

Strongly agree

--

Slightly agree

--

Agree

--

Disagree

--

Slightly disagree

--

Strongly disagree

--

Give examples

.....
.....
.....

Thank you

**APPENDIX D: INTERVIEW GUIDE FOR TEACHERS, COLLEG LEARNERS
AND PARENTS**

1. Is there any relationship between language and socio-economic development?
2. What are the socio-economic benefits of using ChiShona as a language of instruction in education?
3. What are the problems that are likely to be encountered if Zimbabwe decides to use ChiShona as an official language of instruction in education?
4. Do you think it is possible to teach Mathematics from primary to university level using an African language as a medium of instruction?
5. What do you think is the attitude of Zimbabweans towards the use of the mother tongue as a medium of instruction in education?
6. Do you think English should continue to be used as the official medium of instruction in Zimbabwe?
7. Are teachers in this country fully equipped to use African languages as a media of instruction in education?
8. Are there any efforts that are being made to promote use and growth of ChiShona in Zimbabwe?
9. What do you think should be done to improve the status and function of ChiShona in Zimbabwe?

Thank you.

APPENDIX E: Teaching programme for Teaching Experiment Group.

The teaching of Addition and Subtraction of numbers was done using the following teaching programme presented in the table below.

<u>Week End</u>	<u>Topic /Content</u>	<u>Objectives</u>	<u>Source</u>	<u>Teaching Aids</u>	<u>Activities</u>
<i>Kupera kweVhiki</i>	<i>Musoro ne Zvinofundwa</i>	<i>Zvinangwa</i>	<i>Jerero</i>	<i>Zvombo</i>	<i>Zviitwa</i>
11/02/11 <i>11Kukadzi 2011</i>	<u>Counting</u> <u>Numbers and</u> <u>Simple</u> <u>Addition:</u> <i>Kuverenga</i> <i>nekusanganiswa</i> <i>kwema Nhamba</i>	By the end of the week the learners should be able to, <i>Mukupera</i> <i>kwesvondo vana</i> <i>vanofanira kunge :</i> • Answer in English pre-test questions on numbers , addition and subtraction, <i>kunyora</i> <i>neChirungubvu</i> <i>nzorinotsvaka</i> <i>zvakaaitwa</i> <i>nevana vasati</i> <i>vatanga</i> <i>kudzidza</i>	New Ventures in Maths, Grade 4 Pages/ <i>pej</i> <i>i</i> 8-13	Abacus/ <i>Abhakasi</i> Stones/sticks as counters, <i>Matombo,zvimiti</i> <i>zvokuverengesa</i> <i>nekusanganisa</i> <i>maNhamba</i>	-write a pre-test on numbers , addition and subtraction, <i>kunyora</i> <i>bvunzorinotsva</i> <i>ka zvakaaitwa</i> <i>nevana vasati</i> <i>vatanga</i> <i>kudzidza</i> <i>nekusanganisa</i> <i>kana kubviswa</i> <i>kwemaNhamba</i> -Counting of numbers up to 100 <i>Kuverenga</i> <i>kubva pana</i>

		<p><i>nekusanganisa kana kubviswa kwemaNhamba</i></p> <ul style="list-style-type: none"> • Write in numerals the numbers on given abacus. <p><i>Nyora maNhamba aripamufananid zo uneAbhakasi</i></p> <ul style="list-style-type: none"> • Add numbers that involve tens and units, <p><i>kusanganisa nhamba dzinosvika makumi</i></p> <ul style="list-style-type: none"> • Solve simple word problems that involve addition of numbers <p><i>Kusanganisa nhamba dzinopinza nyaya mukati</i></p>			<p><i>motsi kusvika paZana</i></p> <p>-writing exercises on simple addition in <i>ChiShona, Kunyora basa rinoda zvekusanganisa maNhamba</i></p>
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18/02/11 18Kukadzi 2011	<u>Addition</u> <u>hundreds, tens</u> <u>units- word</u> <u>problems</u> Kusanganiswa kwe Nhamba dzine Nyaya	By the end of the week the learners should be able to, Mukupera kwesvondo vana vanofanira kunge : <ul style="list-style-type: none"> • Draw pictures that represent given numbers on an Abacus, Kutara mufanikiso paAbhakasi inomirira maNhamba akapiwa • Add numbers that involve hundreds tens and units, kusanganisa nhamba dzinosvika makumi • Solve number stories that involve addition and are written in 	New Ventures in Maths, Grade 4 Pages/ <i>pej</i> i 13-15	Abacus/ Abhakas -Stones/sticks as counters, Matombo,zvimiti zvokuverengesa nekusanganisa maNhamba -Number line/ Mutsetse uneNhamba -Snake and ladder game/ Mutambo weNyoka nemaNera	-writing exercises on simple addition in ChiShona, Kunyora basa rinoda zvekusanganisa maNhamba -translate word problems in English to ChiShona, Kunyora mavara arimuEnglish achiiswa muChiShona
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		Chishona, <i>Kutsvaka mhinduro pakusanganisa maNhamba ari munyaya dzemaNhamba.</i>			
25/02/11 25Kukadzi 2011	<u>Subtraction:</u> <u>tens, units</u> <i>Kubviswa kweNhamba dzinoperera mumakumi.</i>	By the end of the week the learners should be able to, <i>Mukupera kwesvondo vana vanofanira kunge :</i> <ul style="list-style-type: none"> • Subtract numbers that involve tens and units, <i>kubvisa nhamba dzinosvika kumamakumi</i> • Draw pictures that represent given numbers on an Abacus, <i>Kutara mufanikiso paAbhakasi inomirira</i> 	New Ventures in Maths, Grade 4 Pages/ <i>pej</i> i 16-18	-Abacus/ <i>Abhakas</i> -Stones/sticks as counters, <i>Matombo,zvimiti zvokuverengesa nekusanganisa maNhamba—</i> -Number line/ <i>Mutsetse uneNhamba</i>	-writing exercises on simple addition in <i>ChiShona, Kunyora basa rinoda zvekusanganisa maNhamba</i> -translate word problems in English to ChiShona, <i>Kunyora mavara arimuEnglish achiiswa muChiShona</i>

		<p><i>maNhamba akapiwa</i></p> <ul style="list-style-type: none"> • Solve number stories that involve subtraction and are written in Chishona, <p><i>Kutsvaka mhinduro pakubvisa maNhamba ari munyaya dzino Pinza maNhamba.</i></p> 			
<p>04/03/11</p> <p>4Kubvumbi 2011</p>	<p><u>Subtraction:</u> <u>hundreds, tens and units/ word problems</u></p> <p><i>Kubviswa kweNhamba dzinoperera mumazana dziine Nyaya</i></p>	<p>By the end of the week the learners should be able to,</p> <p><i>Mukupera kwesvondo vana vanofanira kunge :</i></p> <ul style="list-style-type: none"> • Subtract numbers that involve hundreds, tens and units, <p><i>kusanganisa nhamba</i></p> 	<p>New Ventures in Maths, Grade 4</p> <p>Pages/<i>peji</i> 18-20</p>	<p>Abacus/<i>Abhakas</i></p> <p>Stones/sticks as counters,</p> <p><i>Matombo,zvimiti zvokuverengesa nekusanganisa maNhamba</i></p>	<p>writing exercises on subtraction of numbers in</p> <p><i>ChiShona, Kunyora basa rinoda zvekubviswa kwemaNhamba</i></p>

		<p><i>dzinosvika</i> <i>makumi</i></p> <ul style="list-style-type: none"> • Solve word problems that involve subtraction of number problems translated from the English text, <p><i>Kutsvaka</i> <i>mhinduro</i> <i>pakubvisa</i> <i>maNhamba ari</i> <i>munyaya dzino</i> <i>Pinza</i> <i>maNhamba</i> <i>dzabuda</i> <i>mubhuku</i> <i>reChirungu.</i></p> <ul style="list-style-type: none"> • Answer questions on addition and subtraction of numbers for the post test written in ChiShona for Group A and in English for Group B 			
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APPENDIX F PRE TEST FOR TEACHING EXPERIMENT

Answer all the questions

Write these numbers in words

1. (a)32, (b) 53
2. (a)572 (c)8974

Show these numbers on the abacus

3. (a)45 (b) 804
4. (a)2895 (b)4655

Fill in the missing numbers

5. (a) 10, 20; 30; 40; ---; 60; 70.
(b) 7; 9; 11; ---: 15; 17

Write these in numbers

6. Sixty seven
7. Two hundred and twenty six
8. Five hundred and one

Fill in the missing number

9. $7 + \square = 12$

10. $\square - 3 = 8$

11. $10 + 5 = \square$

12. A boy had to write 3006. By mistake he left out the place holders. What number did he write?.

13. Use the number line to complete
(a) $9 - 5 = \square$

(b) $12 + 7 = \square$

14. Write down the correct counting order

(a) 450; 430; 470; 480;

(b) 1;5;3;7;9;11.

15. Try this $342 + 133$

APPENDIX G POST TEST FOR TEACHING EXPERIMENT

Group A Post test written in ChiShona

Pindura mibvunzo yose.

Zadzisa

(1) $4+9 = 13$ so $4=13$

(2) $7+8 = 15$ so $8+$ 5

(3) $6 + 5=11$ so $5+ 6 =$

Sanganisa

(4) 513 ne 174

(5) 348 ne 154

(6) 715 ne 272

Bvisa

(7) 54 kubva mune 377

(8) 734 kubva mune 939

(9) 131 kubva mune 131

Shandisa tafura iyi kupindura muvhunzo inotevera

Vashanyi pa Shoo				
Muvhuro	Chipiri	Chitatu	China	Chishanu
163	235	431	496	575

Nyora nhamba idzi muChiShona

(10) 235

- (11) 496
 (12) 575
 (13) Vanhu vangani vakaenda ku Shoo musi weMuvhuro ne Chipiri
 (14) Vakawanda zvakadini vanhu vakauya ku Shoo musi weChina pane vakauya Chitatu
 (15) Munhu wega wega akauya kuShoo akapiwa Bhuku. Akawanda zvakadii maBhuku akapiwa musi we Chishanu kupfuura akapiwa neMuvhuro?

Mazana maviri ane makumi mana kusanganisa ne makumi matatu ane zvishanhu. Mhinduro chii?

- (16) Muma Nhamba
 (17) Mumazwi
 (18) Pa sarudzo yakaitwa vanhu 202 vakasarudza Mai Chikomo, 115 vakasarudza va Nhamo, 71 vakasarudza vaChivhanga. Vangani vanhu vakaita sarudzo

- (19) Pa Kambani yeBata pane vashanda 978. Madzimai mangani kana varume vari 235?

- (20) Sanganisa manhamba aya

$$213+22+142$$

Group B Post test written in English

Answer all the questions

Complete

(1) $4+9 = 13$ so 4=13

(2) $7+8 = 15$ so $8+$ 5

(3) $6 + 5 = 11$ so $5 + 6 =$

Add

(4) 513 and 174

(5) 348 and 154

(6) 715 and 272

Subtract

(7) 54 from 377

(8) 734 from 939

(9) 131 from 131

Use the table to answer these questions,

Visitors at the show				
Monday	Tuesday	Wednesday	Thursday	Friday
163	235	431	496	575

Write these numbers in words

(10) 235

(11) 496

(12) 575

(13) How many people visited the Show on Monday and Tuesday altogether?

(14) How many more people visited the Show on Thursday than Wednesday ?

(15) Each person attending the show was given a book. How many more books were given on Friday than Monday?

Two hundred and forty plus thirty five. What is the answer in:

(16) In figures

- (17) In words
- (18) At an election 202 people voted for Mrs Chikomo. 115 people voted for Mr Nhamo and 71 for Mr Chivhanga. How many people voted altogether?
- (19) At Bata shoe company there are 978 workers. How many of these are men if 235 are women?

- (20) Work out this

$$213+22+142$$

APPENDIX H FOR THE EXERCISES GIVEN TO GRADE 4 LEARNERS DURING PRACTICAL TEACHING EXPERIMENT

ZVIITWA ZVE Group A

CHIITWA 1

Nyora nhamba idzi dziri mumazwi.

1. (a) 245

(b) 556

2. (a) Sanganisa gumi neimwe papfumbabwe.....

(b) Mazana matatu ane makumi maviri kubvisanmakumi maviri.....

3. (a) $24 + 6 =$

(b) $76 - 22 =$

Edza kutsvaka mhinduro

4. (a) $13 + 24 + 36 =$

(b) $21 + 35 + 42 =$

5. (a) Sanganisa 2571 ne 3521

(b) Zvakasiyana zvakadii pakati pe156 ne 120

CHIITWA 2

Sanganisa

- (a) 47 ne 39
(b) 1402 ne 8099

Zadzisa nhamba dzakasiiwa

- (a) $92 + \square = 120$
(b) $\square + 135 = 200$

Bvisa

- (a) 79 kubva mu 91
(b) 4864 kubva mu 5000

Zadzisa nhamba dzakasiiwa

- (a) $42 - \square = 25$
(b) $\square - 251 = 249$

Zadzisa zvasara mubhokisi

Chikoro	Vakomana	Vasikana	Vasanganiswa
Ross Camp	684	497	
Mzilikazi	215	253	
Vasanganiswa			

CHIITWA 3

1. Mukirasi mune vakomana 24 ne vasikana 17. Vana vangani mukirasi?
2. Mudhibhisi akadhibhisa mombe 59 ne Muvhuro, 67 ne Chipiri. Mudhibhisi akadhibhisa mombe ngani pamazuva maviri aya?
3. Va Ncube vane mombe 39. Akapa 16 kuvanhu vemunharaunda. Akasara ne mombe ngani?
4. Tariro ane masendi 72 cents, Tafadzwa ane masendi 53 . Tariro ane masendi akawanda zvakadii kupfuura Tafadzwa?
5. Pa chikoro cheRoss Camp pane vane 514 children. Vana 29 havana kuuya. Vana vangani vaiva pachikoro?

EXERCISES FOR GROUP B

EXERCISE 1

Write the following numbers in words.

1. (a) 245

2. 556

3. (a) Eleven plus nine equals.....

(b) three hundred and twenty minus sixty five equals.....

4. (a) $24 + 6 =$

(b) $76 - 22 =$

Try the problems

5. (a) $13 + 24 + 36 =$

(b) $21 + 35 + 42 =$

6. (a) What is the sum of 2571 and 3521

(b) what is the difference between 156 and 120

EXERCISE 2

Add

1 (a) 47 and 39

(b) 1402 and 8099

Fill in the numbers

2 (a) $92 +$ $= 120$

$$(b) \quad + 135 = 200$$

Subtract

3 (a) 79 from 91

(b) 4864 from 5000

Fill in the missing numbers

4 (a) $42 - \boxed{} = 25$

(b) $\boxed{} - 251 = 249$

5 Fill in the totals of the table below

School	Boys	Girls	Totals
Ross Camp	684	497	
Mzilikazi	215	253	
Total			

EXERCISE 3

1. There are 24 boys and 17 girls in a class. How many children in the class altogether?
2. The dip attendant dipped 59 cattle at a tank on Monday and 67 on Tuesday. How many cattle did he dip on both days?
3. Mr Ncube had 39 cattle. He gave 16 to the community. How many had he left?
4. Tariro has 72 cents, Tafadzwa has 53 cents. How many more cents has Tariro than Tafadzway?
5. At Ross Camp Primary School there are 514 children. 29 children are away. How many children are there at school?

APPENDIX I: LIST OF TERMS THAT WERE TRANSLATED FROM ENGLISH TO CHISHONA AND FREQUENTLY USED IN THE TEACHING EXPERIMENT

ENGLISH

One

Two

Three

Four

Five

Six

Seven

Eight

Nine

Ten

Twenty

Fifty

Seventy

Ninety

Hundred

Two hundred

ENGLISH

motsi/ hwani

piri

tatu

ina

shanu

tanhatu

chinomwe

sere

pfumbamwe

gumi

makumi maviri

makumi mashanu

makumi manomwe

makumi mapfumbamwe

zana

mazana maviri

Abacus	abhakasi
Number	nhamba
Addition	kusanganisa
Subtraction	kubvisa
Plus	sanganisa/ purasi
Minus	kubvisa
Teaching Aids	Zvombo
Grocery	girosari
Computer	kombuyuta
Store	chitoro
Money	mari
Chart	chati
Ladder	radha/ manera
Picture	pikicha/ mufananidzo/mufanikiso

CURRICULUM VITAE

PERSONAL DETAILS

SURNAME: CHIVHANGA
FIRST NAME (S): ESTER
DATE OF BIRTH: 12 SEPTEMBER 1968
PLACE OF BIRTH: MAZOE
SEX: Female
MARITAL STATUS: **Married**
I.D. NUMBER: 63 752026 E 15
HOME ADDRESS: 212 COWDRAY PARK LUVEVE. BULAWAYO
0772263759/ 0773510816
POSTAL ADDRESS: as above
LANGUAGES: **SHONA, ENGLISH AND NDEBELE**
PRESENT EMPLOYER: UNITED COLLEGE OF EDUCATION

PRESENT POSITION: Principal Lecturer - Department of African Languages
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EDUCATIONAL QUALIFICATIONS

- (a) **DLITT ET PHILOSOPHY (AFRICAN LANGUAGES) UNISA 2012**
TITLE OF THESIS: The use of ChiShona as a medium of instruction in the teaching of Mathematics in primary schools of Zimbabwe.
- (b) **MASTERS OF ARTS (AFRICAN LANGUAGES) UNISA 2008**
TITLE OF DISSERTATION: *The diglossic relationship between Shona and English languages in Zimbabwean Schools.*

(c) BA (HONOURS) (AFRICAN LANGUAGES) UNISA 2005

(c) BA (AFRICAN LANGUAGES) UNISA 2000

(d) Diploma in Education UZ (Masvingo Teachers' College) 1994

AWARDS/PRIZES

Awarded the most outstanding student achievement award in Shona for the Department of Shona in 1994
-Masvingo Teachers' College

WORK EXPERIENCE

- 1. POSITION: - PRINCIPAL LECTURER: DEPARTMENT OF AFRICAN LANGUAGES
UNITED COLLEGE OF EDUCATION BOX 1156 BULAWAYO FROM AUGUST 2003
TO PRESENT DATE**
- 2. SENIOR TEACHER TATEGULU PRIMARY SCHOOL Jan 1997 to July 2003**

ASSOCIATION MEMBERSHIP

- 1. Committee member of the 'Shona Language and Culture Association' for Schools and
Tertiary Colleges in Bulawayo Region.**
- 2. Member of the ASIPHILENI SOCIAL GROUP for counseling student teachers with HIV/
AIDS problems at United College of Education.**

HOBBIES AND SPORTS

- Reading Shona Novels
- Cultural dance

REFEREES

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